

Human Development Report 2004



Government of Orissa

Human Development Report 2004

Orissa



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RAMESHWAR THAKUR
GOVERNOR OF ORISSA



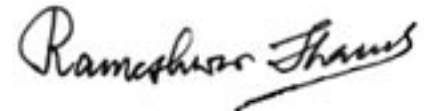
RAJ BHAVAN
BHUBANESWAR- 751008

MESSAGE

I am glad that the State Government is bringing out the first Human Development Report for Orissa with support from Planning Commission, Government of India and United Nations Development Programme (UNDP).

Human Development approach asserts that the gains of development should be shared by all, in an equitable manner. In this regard, this approach makes a crucial shift from earlier development approaches, which laid emphasis on economic development and social development.

I hope the Human Development Report, 2004 for Orissa will be well received by different stakeholders. While felicitating the State Government for bringing out this much needed document, I hope the planning process of the State will be suitably reoriented to effectively address the challenges ahead and meet the reasonable expectations of the people of Orissa.


(Rameshwar Thakur)



NAVEEN PATNAIK

CHIEF MINISTER, ORISSA



सत्यमेव जयते

ORISSA STATE

MESSAGE

I am glad to introduce the first Human Development Report for Orissa. This is a joint endeavour of Government of Orissa, Planning Commission, Government of India and the United Nations Development Programme (UNDP). UNDP defines human development as enlargement of people's choices and opportunities for attainment of better standard of living, marked by longer, healthier and more creative life.

Experience shows that the process of development does not guarantee accrual of equal benefits and opportunities to all sections and regions of a society. It, therefore, becomes necessary to evolve a development strategy that ensures effective and efficient use of available resources for furthering the well-being of the people and encourages sharing of development benefits and opportunities in an equitable manner. It is in this context, that the initiative for the UNDP to prepare State Level Human Development Reports needs to be appreciated. This initiative provides framework for a people-centric development process.

The HDR-2004 for Orissa attempts to make an independent and objective assessment of the status of "Human Development" in Orissa. It also underscores the challenges ahead and offers new opportunities for the people of Orissa.

I would like to thank Planning Commission, Government of India and UNDP for their assistance and support for the preparation of this report and look forward to future co-operation in following up the recommendations of this report.

(Naveen Patnaik)





ସୁଭାଷ ପାଣି

Dr. Subas Pani, IAS



ମୁଖ୍ୟ ଶାସନ ସଚିବ ଏବଂ ମୁଖ୍ୟ ଉନ୍ନୟନ କମିଶନର
ଓଡ଼ିଶା ସରକାର, ଭୁବନେଶ୍ୱର

Chief Secretary & Chief Development Commissioner
Government of Orissa, Bhubaneswar

MESSAGE

I am glad that Nabakrushna Choudhury Centre for Development Studies has prepared a comprehensive Human Development Report on the State of Orissa.

Orissa, endowed with abundant natural resources and renowned for its cultural heritage, is making sustained progress on human development front. The absolute value of Human Development Index (HDI) of Orissa has risen by 51.3% between 1981-2001. The Government of Orissa through its legislations, budgetary provisions, administrative measures and concerted action with community-based organizations is implementing a comprehensive development programme for ensuring growth with social justice.

Orissa is entering a new phase of development which will see productive use of its natural endowments as well as intensive use of its human resources particularly in IT and services sector. Major sectors which are poised for substantial growth cover industries, tourism, fisheries, handlooms and handicrafts, IT, transport and horticulture among others. The next decade will also see an order of magnitude improvement in infrastructure in terms of roads, railways, ports, as well as social infrastructure in terms of educational institutions, health facilities etc. A sustained pace of growth in livelihood programmes is also likely to have a salubrious influence on human development index in the state. The current scenario is difficult but yet is full of promises. In that context the situation can be best described as most challenging. The objective is to ensure that there is adequate economic growth particularly in areas where it is lacking, that economic growth reaches people and that people contribute to growth.

Even though a series of global and national HDRs are available, the present Orissa Human Development Report fulfills a critical gap since several State-specific issues have been raised and since the development of social sector is mainly the responsibility of the state Government. The Report's theoretical underpinnings advocate the centrality of human issues in the development dialogue. To translate this advocacy into action, the Report provides well-researched data and case studies from the field. The Report has admirably summed up the challenges against which we have to match our commitment and action. The report vindicates the gains we have achieved so far, unravels a long unfinished agenda, as well as sets benchmarks to judge future attainments. The facts and analyses provided here would immensely help in informed policymaking as well as inspire and direct practical action by civil society.

I warmly congratulate the Director and expert team of Nabakrushna Choudhury Centre for Development Studies for having brought out this Report.


(Dr. Subas Pani)





Planning Commission

**United Nations Development
Programme**



India

MESSAGE

We congratulate the Government of Orissa for preparing its first and much awaited State Human Development Report.

The Orissa HDR 2004 highlights the salient features of the State's progress and challenges in sectors such as education, health, income, gender, rural and tribal livelihoods and disaster management. It documents the State's poor outcomes in terms of high infant and child mortality, persistent challenge of water borne and respiratory diseases, low levels of access to education and health services, in addition to pervasive patriarchy and erosion of tribal livelihoods and folkways.

The Report does not stop at a mere definition of the problem and enumeration of failures. It makes a strong case for focused public action, by government and civil society, to improve the coverage and quality of basic services, empowerment of women and communities in natural resource management and reduction of vulnerability to disasters. It emphasises the critical role of State policies to address 'market failures' in the provisioning of human development, in areas such as food security, primary health care, duration and quality of education, gender justice and sustainable management of forest and water resources.

The Orissa HDR highlights the policy and programme initiatives of the State with regard to key human development sectors that would enable this important part of India to meet national development goals and fulfill people's aspirations for a decent quality of life.

It is hoped that the Report would catalyse greater public debate and follow-up action in Orissa on important issues of human development.

Rohini Nayyar

Senior Consultant, Planning Commission
Government of India

Maxine Olson

UNDP Resident Representative &
UN Resident Coordinator



Shri Ajit Kumar Tripathy, IAS
Development Commissioner-cum-
Additional Chief Secretary
ORISSA



FOREWORD

Gross State Domestic Product (GSDP), the traditional indicator of economic growth has now been, perceived as an inadequate measure of social well-being. The need for a better measure of social well-being and quality of life has been increasingly felt in knowledgeable quarters. This churning has resulted in evolution of the concept of Human Development. It must be seen as an evolving process aimed at increasing the people's skills and capacities, and widening their choices, to live long, healthy and fulfilled lives. Human Development is a multi-dimensional measure of the people's over-all well-being based on several socio-economic indicators including income, literacy, health, reproductive child health, access to safe drinking water and gender issues.

The Orissa Human Development Report, 2004 is the first initiative of the State Government to take an account of current levels of achievements, to identify areas of concern, and to explore policy options which may expedite improvement of human development conditions in Orissa. The first Human Development Report of Orissa may also be seen as a bench-mark study against which future attainments in respect of human development can be judged. Orissa has made impressive gains on literacy front between 1981-2001. However, poor female literacy and a great deal of inter-district and gender disparities have been observed as areas of serious concern. Orissa is prone to natural calamities, cyclones, floods and droughts, which accentuate the poverty of the masses. Health indicators also suggest unsatisfactory health conditions. Infant Mortality Rate (IMR) continues to be very high, despite its faster decline during the recent years. More efforts are, therefore, needed to improve basic curative and preventive health services. Heavy incidence of poverty and food insecurity are areas of serious concern.

In this backdrop, it is heartening to note that the State Government has recently taken several initiatives to improve key indicators that constitute part of Human Development Index. The State Government has constituted a Poverty Task Force (PTF) to suggest an appropriate policy framework to encourage broad-based and pro-poor growth, so that the poor and vulnerable also share the fruits of economic growth and emerging economic opportunities in an equitable and sustainable manner.


The State Government has mounted the Mission Shakti to empower women and encourage them to participate in the economy building process. The Infant Mortality Mission has been launched to reduce IMR. The Watershed Mission has been entrusted with the task of drought-proofing measures including soil and water conservation. The State Government has been striving to promote agricultural growth, to encourage private investment with a view to harnessing Orissa's natural wealth, and to create income and employment opportunities for the people of Orissa.



Efforts have been stepped up to improve the delivery of public services for the people in general, and the poor in particular. The necessary institutional and policy reforms are on the agenda of the State Government. It is hoped that this report shall sensitise planners and policy-makers to take expeditious steps to enhance social well-being.

We are grateful to the Planning Commission, Government of India and the United Nations Development Programme (UNDP) for their initiative and participation in the preparation of this report. Nabakrushna Choudhury Center for Development Studies (NCDS), Bhubaneswar has made a commendable effort in preparing this report. We thankfully appreciate their efforts and contributions. The concerned State Government Departments have enriched this report through their constructive comments and observations. Their contributions are sincerely acknowledged. The officers and staff of the Planning & Coordination Department and those of Directorate of Economics & Statistics have ungrudgingly contributed to this report. They, therefore, deserve to be congratulated.

We in the State Planning & Coordination Department look forward to constructive comments and suggestions from all concerned who may find this report useful and who may help improve Human Development conditions in Orissa.



(A.K. Tripathy)

Acknowledgements

Several organizations and individuals have contributed to the completion of this report. We are grateful to **Sj. Naveen Patnaik, Hon'ble Chief Minister, Orissa** who displayed an active interest in, and extended his support for, completion of this report. The initiative to prepare the first **Human Development Report** for Orissa was taken by Shri S. M. Patnaik, IAS, the then Chief Secretary-cum-Chief Development Commissioner, Orissa. Subsequent Chief Secretary-cum-Chief Development Commissioners namely: Shri D.P. Bagchi, IAS, Shri P.K. Mohanty, IAS and Dr. Subas Pani, IAS continued to lend their support and authority to facilitate finalisation of this report. Their efforts and support are gratefully acknowledged.

Shri Srinibas Rath, IAS, former Development Commissioner-cum-Additional Chief Secretary

mounted a drive to complete this report expeditiously. He also created opportunities to discuss initial drafts of this report with Secretaries and senior officers of the concerned Departments of the State Government. Shri Ajit Kumar Tripathy, IAS, Development Commissioner-cum-Additional Chief Secretary devoted his time and efforts to intensively review the draft report and to give it the final shape. Their efforts and contributions are also gratefully acknowledged. Secretaries and senior officers of the concerned Departments enriched this report through their constructive comments and suggestions. We are grateful to all of them.

The report was prepared by Nabakrishna Choudhury Centre for Development Studies (NCDS), Bhubaneswar. Dr. G.C. Kar, former Director, NCDS and Dr. Sakti Padhi, Professor and Acting Director,

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Chapter-3	Food Insecurity, Nutritional Status and Nutritional Support Programme	Sakti Padhi
Chapter-4	Health Condition	Sakti Padhi
Chapter-5	School Education	Kishore Ch. Samal Manoranjan Behera
Chapter-6	The Gender Question	Kishore Ch. Samal Biswabas Patra Rajkishore Meher
Chapter-7	Vulnerability Reduction for Sustainable Development: In the Context of Natural Disasters	Kishore Ch. Samal Shibalal Meher
Chapter-8	Some Measures of Human Development: An Inter-district Analysis	Aswini Kumar Mishra Sakti Padhi
Chapter-9	Strategies for Financing Human Development	Shibalal Meher Sakti Padhi
Chapter-10	The Challenges Ahead	Sakti Padhi



NCDS took the overall responsibility to oversee the preparation of this report. School of Women's Studies, Utkal University, Mr. B.N. Nanda, Dr. H.K. Panda, Dr. P.K. Panda, Dr. J.B.G. Tilak and VASTAVA prepared background papers. The faculty members of NCDS who have contributed their efforts to this report is mentioned above.

Their efforts and contribution are thankfully acknowledged. NCDS also organised two workshops, which proved to be extremely useful in identifying issues, clarifying questions and providing insights into understanding the processes that impact human development in Orissa. These workshops were also helpful in shaping this report. Efforts of all those who participated in, and contributed to, these workshops are also thankfully acknowledged.

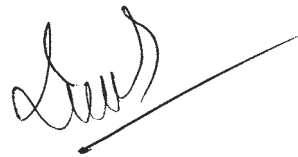
The report was prepared with the encouragement and support of the Planning Commission, Government of India. We wish to place on record our sincere thanks to Dr. Rohini Nayyar, Senior Consultant, Mr. B.N. Nanda, Director (RD), and the other concerned officers of the Planning Commission, Government of India.

The Human Development Resource Centre (HDRC) at the United Nations Development Programme (UNDP), India Country Office provided financial, intellectual and other logistic support for the preparation of this report. The UNDP Resident Representative, Dr. Maxine Olson took a personal interest in the progress of the report. Dr. K. Seeta Prabhu, Head, HDRC and Dr. Suraj Kumar of HDRC took keen interest in the progress of the report and participated in the entire process of the preparation of this report. Their support was crucial and very encouraging. Ms. Trishna Satpathy was also intimately involved in the finalization of this report. Others from

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This work would not have been possible without the active co-operation of my colleagues in Planning & Co-ordination Department. Both, Dr. K.S. Ganeshan and Shri Lokanath Sarangi, Special Secretaries to Government, provided Secretarial and intellectual support to this report. Shri G. C. Paul, Additional Director (Plan), Shri J. K. Mishra, Deputy Director (Plan), Dr. B. N. Mohapatra, Asst. Director and other officials of Plan Branch shouldered several responsibilities to finalise this report. The Directorate of Economics & Statistics also extended unquestioned support and provided crucial data for this report. Their efforts and contributions are sincerely appreciated.

The process of preparation of this report has been an interactive and enriching experience. We hope that this report shall be helpful to all those, who desire and intend to improve human development conditions in Orissa.



(R.V. Singh)
Special Secretary to Government
Planning & Co-ordination Department
Orissa

Background Papers

Nanda, B.N. (2002), 'Poverty in Orissa: Contours of Continuity and Change'.

Panda, H.K. (2002), 'District-level Data for Chapter on School Education'.

Panda, Pradeep Kumar (2002), 'Health Status of Orissa'.

School of Women's Studies, Utkal University (2002), 'Gender'.

Tilak, J.B.G. (2002), 'Education in Orissa—Review of Progress, Problems, and Perspectives for Future of School Education'.

VASTAVA (2003), 'Sustainable Livelihood System for Bhitarkanika Mangrove'.

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Abbreviations

AAV	Antyodaya Anna Yojana	CHSE	Council of Higher Secondary Education
ADAPT	Area Development Approach for Poverty Termination	CMIE	Centre for Monitoring Indian Economy
AE	Actual Expenditure	CPI	Communist Party of India
AHE	Average Health Expenditure	CPI(M)	Communist Party of India (Marxist)
AIADMK	All India Dravida Munnetra Kazhagam	CPR	Common Property Resource
AIDS	Acquired Immuno Deficiency Disease Syndrome	CPR	Common Property Resources
AIDWA	All India Democratic Womens' Association	CRED	Centre for Research on the Epidemiology of Disasters
AIE	Alternative and Innovative Education	CV	Coefficient of Variation
AMCS	Agency for Marketing Cooperative Societies	DANIDA	Danish International Development Agency
ANC	Ante-natal Care	DDC	Drug Distribution Centre
ANM	Auxiliary Nurse Midwife	DDP	District Domestic Product
APL	Above Poverty Line	DDT	Dichlorodiphenyltrichloroethane
ARI	Acute Respiratory Infection	DEC	Disaster and Emergency Committee
AS	Alternative School	DFID	Department for International Development
ASCI	Administrative Staff College of India	DFO	Divisional Forest Officer
ATI	Average Total Income	DHH	District Headquarters Hospital
AWC	Anganwadi Centre	DIET	District Institute of Education and Training
AWW	Anganwadi Worker	DISE	District Information System of Education
BALCO	Bharat Aluminium Company	DOTS	Direct Observation Treatment Short Course
BDO	Block Development Officer	DPAP	Drought Prone Area Programme
BE	Budget Estimates	DPEP	District Primary Education Project
BIMARU	Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh	DPT	Diphtheria, Pertussis (Whooping Cough), and Tuberculosis
BJD	Biju Janata Dal	DWCRA	Development of Women and Children in Rural Areas
BJP	Bharatiya Janata Party	EAS	Employment Assurance Scheme
BMI	Body Mass Index	ECCE	Early Childhood Care and Education
BP	Blood Pressure	EDI	Equally Distributed Index
BPL	Below Poverty Line	EDPT	Early Detection and Prompt Treatment
BSP	Bahujan Samaj Party	EGS	Education Guarantee Scheme
CAGR	Compound Annual Growth Rate	EMA	Emergency Management Australia
CBO	Community-based Organisation	EMCP	Enhanced Malaria Control Project
CBR	Crude Birth Rate	EM-DAT	Emergency Events Database
CBSE	Central Board of Secondary Education	EWS	Early Warning System
CC	Conventional Contraceptive	FCA	Forest Conservation Act
CCP	Community Contingency Plan	FD	Forest Department
CD	Community Development	FDA	Forest Development Agencies
CDPO	Child Development Project Officer	FEMA	Federal Management Agency
CDR	Crude Death Rate	FFW	Food for Work
CED	Chronic Energy Deficiency	FPC	Forest Protection Committee
CFM	Community Forest Management	FTD	Fever Treatment Depot
CFR	Case Fatality Rate	GCA	Gross Cropped Area
CHC	Community Health Centre	GDI	Gender Development Index
		GER	Gross Enrolment Ratio

GHSVS	Government Higher Secondary Vocational School	MVSN	Mahila Vikas Samabaya Nigam
GIA	Gross Irrigated Area	MWS	Million Wells Scheme
GKY	Ganga Kalyan Yojana	NABARD	National Bank for Agriculture and Rural Development
GoI	Government of India	NAC	Notified Area Council
GoO	Government of Orissa	NAMP	National Anti Malaria Programme
GP	Gram Panchayat	NAP	National Afforestation Programme
GSDP	Gross State Domestic Product	NCAER	National Council of Applied Economic Research
H&FW	Health and Family Welfare	NCDS	Nabakrushna Choudhury Centre for Development Studies
H&TW	Harijan and Tribal Welfare	NCERT	National Council of Educational Research and Training
HCR	Head Count Ratio	NCF	National Calamity Fund
HDI	Human Development Index	NCLP	National Child Labour Project
HER	Human Expenditure Ratio	NCW	National Commission for Women
HIV	Human Immuno-deficiency Virus	NDIMR	New District Infant Mortality Rate
HRPC	Human Rights Protection Cell	NFCP	National Filaria Control Programme
IAS	Indian Administrative Service	NFE	Non-formal Education
IAVE	International Association for Volunteer Effort	NFHS	National Family Health Survey
IAY	Indira Awas Yojana	NFP	New Forest Policy
ICDS	Integrated Child Development Services	NGCP	National Goitre Control Programme
ICMR	Indian Council for Medical Research	NGO	Non-Governmental Organisation
ICSE	Indian Council for Secondary Education	NIEPA	National Institute of Educational Planning and Administration
ICSSR	Indian Council of Social Science Research	NLCP	National Leprosy Control Programme
IEC	Information, Education, and Communication	NMEP	National Malaria Eradication Programme
IES	Innovative Education Scheme	NNM	Neonatal Mortality
IFA	Iron and Folic Acid	NNMR	Neonatal Mortality Rate
IIPS	International Institute for Population Science	NPCBP	National Prevention and Control of Blindness Programme
ILO	International Labour Organisation	NPE	National Policy on Education
IMR	Infant Mortality Rate	NPEGEL	National Programme for Education of Girls at Elementary Level
INGO	International Non-governmental Organisations	NPRPD	National Programme for Rehabilitation of Persons with Disabilities
IRDP	Integrated Rural Development Programme	NREP	National Rural Employment Programme
ISED	Institute for Socio-Economic Development	NSDP	Net State Domestic Product
ITI	Industrial Training Institute	NSSO	National Sample Survey Organisation
IUD	Intra Uterine Device	NTCP	National Tuberculosis Control Programme
JFM	Joint Forest Management	NTFP	Non-Timber Forest Produce
JGSY	Jawahar Gram Samridhi Yojana	NYKS	Nehru Yuva Kendra Sangathan
JRY	Jawahar Rozgar Yojana	OB	Operation Blackboard
KBK	Kalahandi, Balangir, and Koraput	OBC	Other Backward Castes
KL	Kenduleaf	ODMM	Orissa Disaster Mitigation Mission
LAMPS	Large Area Multi-purpose Societies	ODR	Orissa Human Development Report
LEB	Life Expectancy at Birth	OFDC	Orissa Forest Development Corporation
M&CH	Maternity and Child Health	OMFED	Orissa State Cooperative Milk Producers Federation
MDM	Mid Day Meal	OPEPA	Orissa Primary Education Programme Authority
ME	Middle English		
MFP	Minor Forest Produce		
MI	Medical Institution		
MLA	Member of Legislative Assembly		
MMR	Maternal Mortality Rate		
MP	Member of Parliament		
MSY	Mahila Samruddhi Yojana		
MT	Metric Tonnes		

OPOLFED	Orissa State Poultry Producers' Cooperative Marketing Federation	SIDA	Swedish International Development Agency
ORC	Orissa Relief Code	SITRA	Supply of Improved Tool Kits to Rural Artisans
ORMAS	Orissa Rural Development and Marketing Society	SNA	System of National Accounts
OSDMA	Orissa State Disaster Mitigation Authority	SNP	Supplementary Nutritional Programme
PDS	Public Distribution System	SPG	Squared Poverty Gap
PEM	Protein Energy Malnutrition	SPR	Social Priority Ratio
PER	Public Expenditure Ratio	SRC	Special Relief Commissioner
PF	Plasmodium Falciparum	SRS	Sample Registration System
PG	Poverty Gap	SS	Sikhya Samasya
PH	Public Health	SSA	Sarva Sikshya Abhiyan
PHC	Primary Health Centre	SSI	Small-Scale Industries
PL	Poverty Line	ST	Scheduled Tribe
PMGY	Pradhan Mantri Gramodaya Yojana	STD	Sexually Transmitted Disease
PMRF	Prime Minister's Relief Fund	TB	Tuberculosis
PNMR	Perinatal Mortality Rate	TBA	Trained Birth Attendant
PR	Poverty Ratio	TDCC	Tribal Development Cooperative Corporation
PRI	Panchayati Raj Institutions	TEWA	Training and Extension for Women in Agriculture
PROBE	Public Report on Basic Education	TPDS	Targeted Public Distribution System
PS	Panchayat Samiti	TRYSEM	Training of Rural Youth for Self Employment
PSE	Pre School Education	TT	Tetanus Toxoid
PSU	Public Sector Undertaking	UDIMR	Undivided District Infant Mortality Rate
PTA	Parent-Teacher Association	UHS	Urban Health Services
PY	Person-years	UIP	Universal Immunisation Programme
RAB	Report of the Administration of Bengal	ULBs	Urban Local Bodies
RCH	Reproductive and Child Health	UN	United Nations
RDC	Revenue Divisional Commissioner	UNDP	United Nations Development Programme
RE	Revised Estimates	UNESCO	United Nations Educational, Scientific and Cultural Organisation
REB	Review of Education in Bengal	UNICEF	United Nations Children's Fund for Population Activities
RHI	Reproductive Health Index	UNV	United Nations Volunteers
RHS	Rural Health Services	VEC	Village Education Committee
RLEGP	Rural Landless Employment Guarantee Programme	VFC	Village Forest Committee
RLTAP	Revised Long Term Action Plan	VHF	Very High Frequency
RMK	Rashtriya Mahila Kosh	VLW	Village Level Worker
RNTCP	Revised National Tuberculosis Control Programme	VPD	Vaccine Preventable Disease
RPCY	Real Per Capita Income	VSS	Vana Surakhya Samiti
SAR	Social Allocation Ratio	W&CD	Women and Child Development
SARS	Severe Acute Respiratory Syndrome	WBPR	World Bank Policy and Research
SC	Scheduled Caste	WCP	Women's Component Plan
SCD	Survey of Causes of Death	WEP	Women's Economic Programme
SD	Standard Deviation	WFP	World Food Programme
SDH	Subdivisional Hospital	WHO	World Health Organization
SDP	State Domestic Product	WPR	Workforce Participation Rate
SGRY	Sampoorna Grameen Rozgar Yojana	WSHG	Women Self-Help Group
SGSY	Swarnajayanti Gram Swarozgar Yojana	WUA	Water Users' Association
SHG	Self-help Group	ZP	Zilla Parishad

Glossary

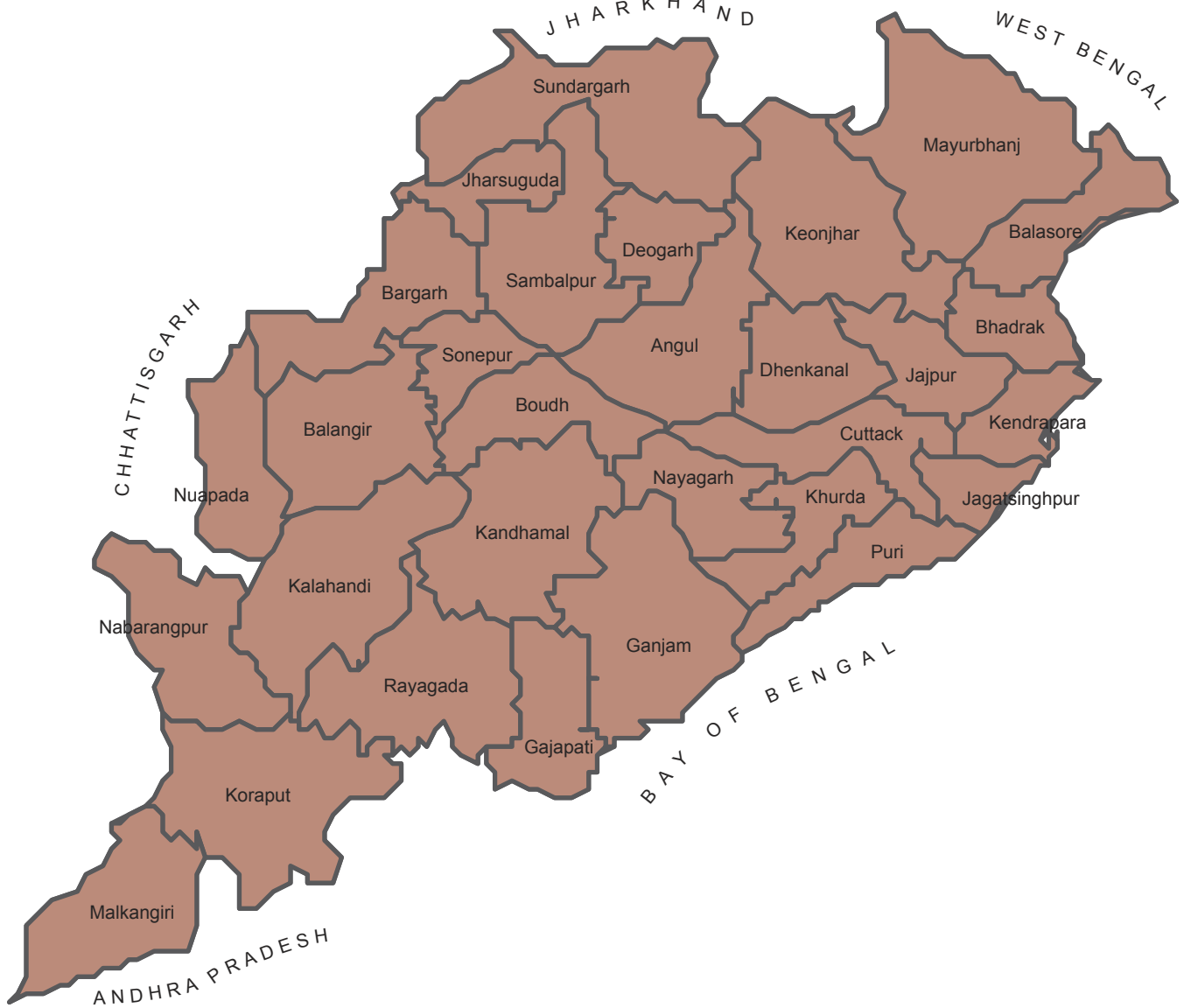
1. **Body Mass Index (BMI)** is the ratio of weight (in kg) to height (in metre) squared, i.e. $\text{weight}/(\text{height})^2$.
2. **Case Fatality Rate (CFR)** for a particular disease is the number of deaths due to that disease as per cent of total number of persons affected by it, for a given period of time, usually computed for a period of one year.
3. **Coefficient of Variation (CV)** is a measure of relative variability and is expressed as the ratio of standard deviation of a variable to its mean value multiplied by 100.
4. **Crude Birth Rate (CBR)** is the number of births per 1000 population. The CBR for a single year is usually calculated as the number of live births during a year divided by the estimated mid-year population and multiplied by 1000.
5. **Chronic Energy Deficiency (CED)** is defined in terms of the value of Body Mass Index (see above). A person is said to be having CED if his/her Body Mass Index is less than 16 kg/m^2 , that is, weight (in kg) per unit height (in metre) squared.
6. **Crude Death Rate (CDR)** is the number of deaths per 1000 population. The CDR for a single year is calculated as the number of deaths during that year divided by the estimated mid-year population and multiplied by 1000.
7. **Education Deprivation Index (EDI)** is the sum of percentage of out-of-school children in the 6–14 years age group and adult illiteracy in 15+ age group population.
8. **Gross Enrolment Ratio (GER)** is the population of a particular age group enrolled in schools as per cent of total population in that age group. When there is no adjustment for overage and underage population enrolled in a particular age group, it is referred to as GER, while it is called as net enrolment ratio (NER) when overage and underage population are excluded.
9. **Infant Mortality Rate (IMR)** is the number of deaths of infants under one year of age for every 1000 live births, usually computed for a period of one year.
10. **Life Expectancy at Birth (LEB)** is the number of years expected to be lived at the time of birth, given the current mortality trends.
11. **Maternal Mortality Rate (MMR)** is the number of deaths of women during pregnancy or childbirth per 100,000 live births.
12. **Neonatal Mortality Rate (NNMR)** is the number of deaths of infants before 28 days of life per 1000 live births, usually computed for a period of one year.
13. **Perinatal Mortality Rate (PNMR)** is the number of infant deaths during the first week since birth (as well as still births and foetal deaths beyond 28 weeks of pregnancy) per 1000 live births, usually computed for a period of one year.
14. **Poverty Gap (PG)** is defined as the per cent difference between the poverty line (see below) income/consumption expenditure and the average income/consumption expenditure of those below the poverty line. Thus, it measures the depth and intensity of poverty.

15. **Poverty Line (PL)** is normatively defined as the level of monthly per capita consumption required to enable a minimum calorie intake (usually expressed as per capita per day) by an individual to lead a normal life.
16. **Poverty Ratio (PR)** is the per cent of population below the poverty line (see above), for a point in time. This is also referred to as the Head Count Ratio.
17. **Sex Ratio** is the number of females per thousand males.
18. **Slide Positive Rate** is the number of malaria positive blood samples as per cent of total number of blood samples examined
19. **Squared Poverty Gap (SPG)** is a measure of the severity of poverty as it takes into account, in addition to the poverty gap (see above), the distribution of the poor below the poverty line around the average income/expenditure of the poor.
20. **Undernutrition** is defined in terms of the value of Body Mass Index (see above). A person is said to be undernourished if his/her BMI is less than 18 kg/m^2 .

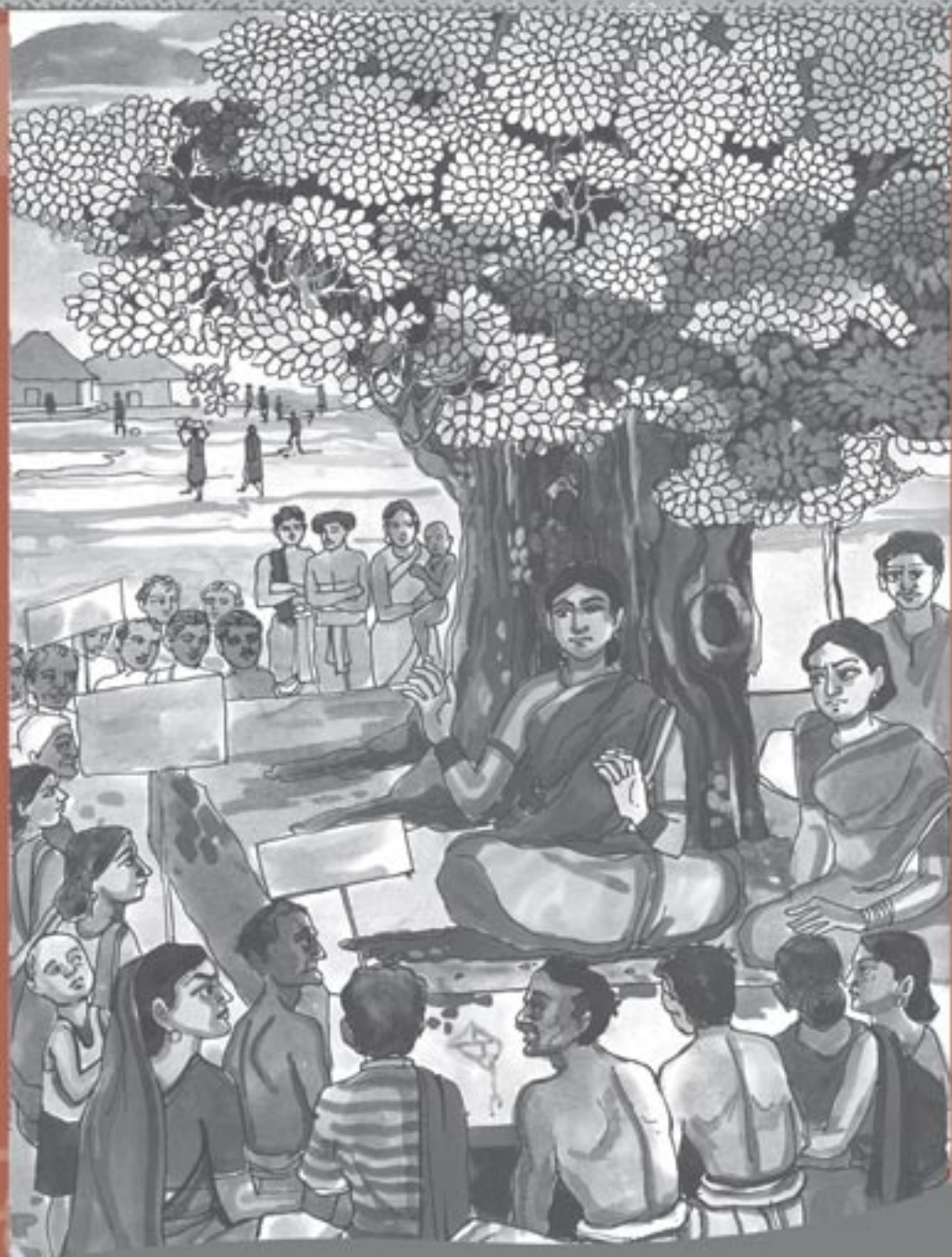
Map 1.1
Administrative Map of Orissa (13 Districts): Pre-1992

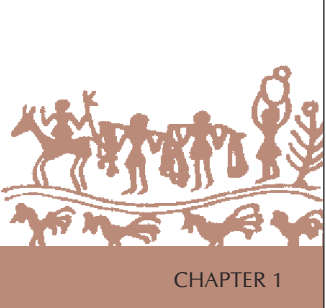


Map 1.2
Administrative Map of Orissa (30 Districts): Post-1992



CHAPTER 1 **Introduction**





Introduction

1.1 Human Development: The Concept and its Significance

Human development primarily consists of the removal of those conditions of social deprivation and discrimination that restrict capabilities of, and deny opportunities for, participating in normal economic and social activities. These activities include attending school at the primary level, having access to quality health care, drinking water, and sanitation as well as gainful employment of an assured nature. People have to participate in the growth process and share in the fruits of growth. 'The term *human development* ... denotes the *process* of widening people's choices as well as the achieved *level* of their well being. It also helps to distinguish clearly between two sides of human development. One is the building up of human capabilities such as improved health or knowledge and the other is the use that people make of their acquired capabilities, for work or leisure' (UNDP 1990, pp. 10–11). The broader notion of human development is not to be confused with the narrower concept of human *resource* development wherein human beings are regarded as agents or instruments of production.

Human development as defined above has three essential dimensions or layers. At the *base* of the concept of human development is the notion of ordinary citizens' *rights*—to participate in normal economic, social, and political activities without discrimination. In order for these rights to be effectively exercised, there is a need to enhance capabilities and expand opportunities—which is the middle layer of the human development concept. For a broad-based and equitable enhancement of capabilities and expansion of opportunities, the removal of economic and social conditions of deprivation is necessary, which is, the top layer of

the concept of human development.

The experience of Indian states like Kerala and Himachal Pradesh shows that it is possible to achieve high levels of social development even at relatively low levels of economic growth. However, growth by itself does not promote human development. This non-correlation between human development and economic growth is of growing interest to development economists. However, from this non-correlation, it is wrong to infer that economic growth is not necessary for human development. No sustained improvement in human well-being is possible without growth. But it is also wrong to suggest that high economic growth rates will *automatically* translate into higher levels of human development since the final outcome depends on the policy choices that countries make. And the real world offers too many uncomfortable examples of a wide divergence between income and human development levels' (Haq 1996, p. 26).

Human development hastens poverty reduction by spreading the benefits of economic growth and by decreasing the fertility rates.

1.2 Measurement of Human Development

The measurement of human development is based on two defining elements of the concept, namely, capability and deprivation. It was suggested by the very first global *Human Development Report 1990* of the United Nations Development Programme (UNDP), that instead of attempting to be comprehensive, it is better, as a starting point, to 'focus on the three essential elements of human life – longevity, knowledge and decent living standards' (UNDP 1990, p. 12). The minimum desirable values are the endpoints of a scale indexed from one to

zero for each measure of deprivation. Placing a country at the appropriate point on each scale and averaging the three scales gives its average human deprivation index, which when subtracted from 1 gives the Human Development Index (HDI). The HDI is now widely used as a *basic* measure of human development. The strength and appeal of HDI lie in the fact that it brings the twin objectives of economic progress *and* social development *together*. It should, however, be kept in mind that the HDI is only a summary indicator of human development and is not a full representation of the comprehensive notion of human development.

Thus it is essential to supplement the HDI with more specialised indices to capture certain other aspects of social well-being. Notable among these are the gender-sensitive aspects since several forms of economic and social deprivations are gender-specific. Acknowledging this fact, UNDP's *Human Development Report 1995* focused on the gender aspects of development, pointing out the '... considerable disparities between how much women contribute to human development and how little they share in its benefits' (UNDP 1995, p. 29).

To capture the gender inequality, a simple measure, analogous to HDI, namely the Gender Development Index (GDI), has been developed. A major strength of GDI is that it captures gender inequality relative to the overall level of achievement. Thus, a comparison between HDI and GDI based ranks gives some indication of how equitably basic human capabilities are distributed between men and women.

1.3 Orissa Human Development Report: Purpose and Focus

One of the main purpose of the Orissa Human Development Report is to provide a benchmark against which future attainments on the human development front can be judged. Another major purpose is to sensitise the planners and policy makers of the state to the significance of the human development perspective for promoting social well-being along with equitable and sustainable

growth. Thus, human development can be an ideal instrument for increasing the pace of poverty reduction. A related purpose is to emphasise the critical role of state policies for promoting human development due to 'market inadequacies' in areas such as food security, primary health care, primary education, removal of gender discrimination, risk minimisation due to natural calamities and other factors. This report spells out the challenges that the state government faces in different areas of human development, and outlines the policy initiatives for meeting these challenges.

Thus, the Report provides a critical examination of certain key components of human development in the state, highlights the achievements to date and describes what else needs to be done to consolidate and accelerate the gains.

The State's Tenth Five-Year Plan document recognises the importance of social and human development as a precondition for realising the redistributive benefits of growth. To quote: 'Experience of development planning over the last three decades has established the proposition that growth is a necessary but not a sufficient condition for the betterment of quality of life of the individual and the community. The Tenth Plan will therefore not only focus on growth with social and distributive justice but it will also strive to bring about necessary social transformation. The emphasis in the Tenth Plan will have elements, which have a bearing on human capital formation.

1.4 Orissa: Some Salient Demographic and Social Features

Orissa is one of the major states of the Indian Union, with a population of 36.71 million in 2001. The population is predominantly Hindu (94.67 per cent). It has the third lowest population density (236 persons per sq. km in 2001) among the major states of India, ahead of only Rajasthan and Madhya Pradesh. However, there is significant inter-district variation [coefficient of variation (CV): 64.20 per cent in 2001] within the state in this regard, with the district of

Khurda¹ having a population density of 666 persons per sq. km at one end, and Kandhamal district with a population density of only 81 persons per sq. km at the other end. This has meant massive spatial concentration of the population. Coastal Orissa accounts for some 52 per cent of the population of the state with an area share of 25 per cent.

The rate of growth of population in Orissa during the decade 1991–2001 was 15.94 per cent as against 21.34 per cent for all-India. This is the third lowest rate of growth of population among the major states of India, with only Kerala (9.42 per cent) and Tamil Nadu (11.19 per cent) having lower rates. This has been the result of a rather peculiar demographic regime—relatively low and steadily declining birth rate going hand in hand with relatively high and very slowly declining death rate, something that does not really fit into any of the three stages of the standard theory of demographic transition. The rate of urbanisation in Orissa at 14.91 per cent is the lowest among the major states of India and is rising very slowly. But there is significant inter-district variation (CV: 73.29 per cent in 2001) in this respect, with the district of Khurda in central–coastal Orissa having an urbanisation rate of 42.93 per cent at one end and Boudh in south-central Orissa, having an urbanisation rate of only 4.82 per cent at the other.²

The sex ratio of Orissa's population was 971 in 1991, the third highest among major Indian states, lower than only Tamil Nadu (986) and Kerala (1058). The aggregate sex ratio of Orissa in 1991 is, in fact, lower than the 0–14 years age group sex ratio of 978. This implies that there is no upward bias towards aggregate sex ratio due to greater male out-migration as compared to that of females.

About 23 per cent of the population comprise the indigenous tribal population, mostly concentrated

in the north-western and south-western districts of the state with traditional means of livelihood. They have a heavy dependence on forests for their livelihood. The north-western districts (Sundargarh, Keonjhar, and Mayurbhanj) account for 35.3 per cent of Orissa's tribal population and the south-western districts (Koraput, Kalahandi, Phulbani, and Balangir) account for another 39.4 per cent (Table 1.1). The forces of modernisation have largely bypassed them. The processes of modernisation have largely marginalised them in economic terms, threatening their livelihood security. Alienation of tribals for various reasons is emerging as a social problem.

The population belonging to Scheduled Caste constitutes a little more than 16 per cent of the state's population. Unlike the tribal population, they are mostly concentrated in the four (undivided) coastal districts of Balasore, Cuttack, Ganjam, and Puri, which together account for 53.8 per cent of the state's SC population (Table 1.1).

It is also worth mentioning that Orissa is the only state in which no major communal riot has occurred since 1975. Open and violent caste conflicts are also uncommon.

HDI and GDI are basic measures of human development and it would be useful to see how Orissa has performed in terms of these indices. Even though the inter-state disparity in the level of human development (as measured by HDI) has been declining between 1981 and 2001, Orissa's relative position has not shown any improvement. Amongst the 15 major states of India, the HDI for Orissa was the fifth lowest in 1981, fourth lowest in 1991, and again the fifth lowest in 2001, even though the absolute value of the index has risen between 1981 and 2001 by 51.3 per cent, albeit from a rather low level (Table 1.2).

¹ District names in this Report are as given in Government of Orissa, Official Directory Orissa, 101st Edition, Corrected Upto 31st July, 2003, Governor's Secretariat, Raj Bhavan, Bhubaneswar.

² This paragraph is based on information collected from Census Reports and put together in Government of India (2002c), p. 1.

Table 1.1

District-wise Percentage of Scheduled Castes (SCs) and Scheduled Tribes (STs) Population in Total Population and Percentage Distribution of SCs/STs across Districts, 1991

State/Districts	Per cent of SCs in total population of state/district	Per cent of STs in total population of state/district	Per cent distribution of SCs across districts	Per cent distribution of STs across districts
Orissa	16.20	22.21	100.00	100.00
Sambalpur	17.48	27.45	9.19	10.53
Sundargarh	8.78	50.74	2.69	11.35
Keonjhar	11.49	44.52	3.00	8.46
Mayurbhanj	6.99	57.87	2.57	15.51
Balasore	19.81	7.07	10.82	2.82
Cuttack	20.36	3.30	21.92	2.59
Dhenkanal	16.43	12.18	6.11	3.31
Phulbani	18.74	37.32	3.16	4.58
Balangir	17.27	18.55	5.75	4.50
Kalahandi	15.86	30.96	4.95	7.05
Koraput	15.01	54.31	8.81	23.27
Ganjam	16.59	9.40	10.22	4.22
Puri	15.45	3.55	10.81	1.81

Source: *Census of India*, Office of the Registrar General and Census Commissioner, *Tables on Scheduled Castes and Scheduled Tribes*, Directorate of Census Operation, Orissa.

Box 1.1 presents the top five districts (with the highest HDI and GDI values) and the bottom five districts (with the lowest HDI and GDI values) in Orissa. The districts with the lowest HDI and GDI values fall in one contiguous belt in the south and south-west part of the state, where there is a concentration of tribal population. On the other hand, the top five districts do not form a contiguous belt but belong to the coastal pockets, north-western and central parts of the state. This spatial pattern provides a backdrop against which the disparities in development and their impact on human development will be highlighted in the Report.

1.5 The Historical Backdrop: The Challenge of the Past

Over centuries, Orissa has evolved a unique political, social, religious, and cultural unity that has been greatly influenced by its geographical insulation from the rest of the country. Orissa has enclosed a semi-circular coastal belt of nearly 480 kilometre long,

forest-clad hills and mountain ranges of the Eastern Ghats. These hilly tracts have some rich river valleys. This has made Orissa a separate geographical unit with a distinct political history. However, Orissa is not totally isolated from the rest of the country as there are three outlets in the northern and southern ends of the coastal belt and in the Mahanadi valley. Through these three routes came influences from the north-east, south as well as from central and northern India, and mingled with the local culture to form a new synthesised culture.

Another distinguishing feature is the presence of tribal elements in this culture. The tribal people have always been an important segment of the total population. Though they were more numerous in ancient and medieval Orissa, today also they constitute about a quarter of the population.

The search for political, social, and cultural integration had taken place side by side. Orissa

Table 1.2
Human Development Index for Major States of India

States/Union Territories	1981	1991	2001
Andhra Pradesh	0.298 (9)	0.377 (9)	0.416 (10)
Assam	0.272 (10)	0.348 (10)	0.386 (14)
Bihar	0.237 (15)	0.308 (15)	0.367 (15)
Gujarat	0.360 (4)	0.431 (6)	0.479 (6)
Haryana	0.360 (5)	0.443 (5)	0.509 (5)
Karnataka	0.346 (6)	0.412 (7)	0.478 (7)
Kerala	0.500 (1)	0.591 (1)	0.638 (1)
Madhya Pradesh	0.245 (14)	0.328 (13)	0.394 (12)
Maharashtra	0.363 (3)	0.452 (4)	0.523 (4)
Orissa	0.267 (11)	0.345 (12)	0.404 (11)
Punjab	0.411 (2)	0.475 (2)	0.537 (2)
Rajasthan	0.256 (12)	0.347 (11)	0.424 (9)
Tamil Nadu	0.343 (7)	0.466 (3)	0.531 (3)
Uttar Pradesh	0.255 (13)	0.314 (14)	0.388 (13)
West Bengal	0.305 (8)	0.404 (8)	0.472 (8)
All India	0.302	0.381	0.472
Mean	0.321	0.403	0.463
SD	0.070	0.074	0.073
CV	21.80	18.37	15.75

Note: Figures in parentheses are HDI ranks in descending order.

Source: Government of India (2002), *National Human Development Report 2001*, Planning Commission, Oxford University Press, p. 25.

Box 1.1
Top Five and Bottom Five Districts of Orissa in terms of HDI and GDI Values

HDI Value		GDI Value	
Orissa (0.57)		Orissa (0.53)	
Top Five	Bottom Five	Top Five	Bottom Five
Khurda (0.736)	Malkangiri (0.370)	Jharsuguda (0.687)	Malkangiri (0.362)
Jharsuguda (0.722)	Kandhamal (0.389)	Sundargarh (0.659)	Kandhamal (0.372)
Cuttack (0.695)	Gajapati (0.431)	Deogarh (0.647)	Jajpur (0.386)
Sundargarh (0.683)	Koraput (0.431)	Angul (0.637)	Gajapati (0.401)
Angul (0.663)	Nabarangpur (0.436)	Cuttack (0.618)	Koraput (0.415)

Note: Figures in parentheses are HDI and GDI values for respective districts.

Source: Chapter 8, Tables 8.1 and 8.3.

is a single geographic unit, with three regions—northern, southern, and coastal. Under Chologanga, the founder of the Ganga dynasty, all three regions were politically united during the first half of the 12th century (O' Malley 1984). The Ganga kings not only legitimised their rule but also ensured territorial integrity of the empire by bringing about religious unity and cultural and social integration through the Jagannath cult. In the year 1230 AD, Ananga Bhima III dedicated his empire to Lord Jagannath and called himself his 'rauta' or deputy. Thus, as the whole land belonged to the lord, any challenge to the Central authority was considered not only a crime against the state, but also a sin against God (Kulke 1986).

1.5.1 The Jagannath Cult and the Grand Synthesis

The evolution of the Jagannath Cult as a state religion under the Gangas (between the 11th century and 1434 AD) and the Surya Vamsi Gajapatis (between 1435 AD and the first half of the 16th century) comprises a landmark in the history of Orissa (O'Malley 1984). The cult of Jagannath incorporates in it the essential elements of all the great religions and cults that flourished in different times under the royal patronage of regional kings. Buddhism, with its message of universal brotherhood, love and compassion, and its stand against the caste system and Hindu ritualism, with its emphasis on the correct moral conduct, became very popular from the 1st to the 8th centuries AD throughout Orissa (Kulke 1986). Thus, Jagannath became a God of all religious cults of Orissa. The term 'Jagannath' (Lord of the Universe) also applies to Vishnu, Shiva, and Buddha.

From the pre-Christian era till the 16th century, Orissa had a flourishing overseas trade with the south-east Asian countries. The coastline was dotted with ports, that were connected by road to southern, western, and northern India. Internal trade and commerce flourished. Arts and crafts developed and agricultural

prosperity was ensured through a light taxation system (one-fourth to one-twentieth of the gross produce) and a sound revenue administrative system (Das Mohapatra 1997).

The conquest of Orissa by the Afghan and the Moghul invaders in the 16th century slowed down economic progress. During their rule, foreign trade was restricted due to Portuguese dominance of the sea. Agricultural development slowed down, not due to the oppressive revenue system, but due to the rapacity and extortion by local officers posted in Orissa towards the end of the empire. During the later part of the Moghul rule and the Maratha rule, local officials became so oppressive that farmers left their lands and fled to the adjoining territories of feudal chiefs. Under the British rule from 1803 till the great Orissa famine of 1866, no attention was paid to the plight of agriculturists, with more focus being laid on revenue collection than on farmers' welfare (Das Mohapatra 1997).

The temporary Zamindari Settlement System, which was in operation throughout the 19th century, proved to be detrimental to the development of agriculture. The *zamindars* temporarily put their land out of cultivation in order to avoid assessment, and the *ryots*³ had no incentive due to lack of security of tenure. The land revenue policy and the sunset law⁴ led to large-scale replacement of Oriya *zamindars* by Bengali *zamindars* who were absentee landlords. Their agents in Orissa resorted to many illegal exactions. Heavy assessment of land tax was one of the main causes for the increase in poverty and deterioration of agriculture. During this period, due to lack of support, village industries and rural handicrafts decayed, and people of the artisan class resorted to agriculture for a living, leading to further pressure on land (Samal 1989).

This gradual decline could only be somewhat

³ Ryots were cultivators who lost their traditional proprietary rights and were reduced to the status of tenants and tenants-at-will (occupancy and non-occupancy tenants).

⁴ The Bengal Regulation, which was extended to Orissa after its occupation by the British, stipulated that if land revenue is not deposited by sunset on the fixed date, the defaulting estates would be sold by public auction. This led to some two-thirds of the old Oriya proprietors losing their estates to rich, absentee Bengalis or Amils (army officers of the Court). The bigger estates were auctioned at Calcutta where the Oriya proprietors had no agents.

reversed after India gained independence, through comprehensive state intervention in agriculture. This involved land reforms, extension of irrigation facilities, introduction of high yielding varieties of seeds, and encouraging the use of fertilizers through subsidies. In spite of the negative developments in agriculture in the 19th century, food security of the people had never been affected, except in the years of widespread famines and scarcity (Samal 1989).

1.5.2 Tribals and their Fight for Lost Rights

The 19th century forms a great divide in the tribal history of Orissa. The impact of the British rule brought about a big upheaval in the tribal life and culture. Prior to the British, the Hindu, Muslim, and Maratha rulers left the tribals alone under the care of hill Rajas and *zamindars*, who had a semi-independent status. They ruled with the support of tribals with whom a symbiotic relationship had been developed. The control over tribals was loose, with no codified or written rules but was based on a deep-rooted tradition and mutual understanding and respect (Majumdar 1997).

All this changed under the British administration. The British had a definite tribal policy consisting of three aspects: suppressing periodic tribal revolts; consolidating their position in the tribal tracts by setting up administrative machinery, and protecting the tribals from exploitation by non-tribals who came in large numbers to support the administration. This policy was applicable to tracts directly under their administration. However, with respect to tribals in the Princely States, the government followed a policy of non-interference, except when there was a grave law and order problem due to tribal revolts.

The 19th century witnessed periodic revolts of tribals because of encroachment on their traditional rights and attacks on their culture. In the first half of the century, revolts, led by Buxi Jagabandhu, Chakra Bisoyi, and Surendra Sai, took place against the annexation of the kingdoms of Khurda (1804), Ghumsar (1836,) and Sambalpur (1849). There were many revolts in the Princely States, the most important ones being

the Nayagarh uprising (1849–52 and 1893–94) and the Kandh uprisings in Patna (1868) and Kalahandi (1881). The Patna and Kalahandi uprisings were of a serious nature, as the Kandhs were driven to the wall by the policy of the state government to settle Oriya farmers (Kultas) in order to advance cultivation. In the course of time, this deprived the tribals of their lands in the plains. Burdened with the loss of food security, indebtedness, poverty, and exploitation by corrupt officials, the tribals made an attempt to elicit a favourable response from the British government. Though sympathetic, the British officers could not do anything, faced as they were with the problem of economic progress versus the interest of the tribals (Majumdar 1997).

In Ganjam and Vizag agency areas, the British government established police stations, administrative offices, courts, schools, and hospitals. The practice of human sacrifice and female infanticide prevalent in some tribes was ruthlessly suppressed. Some well-intentioned measures meant to improve the economic and moral status of the tribals, however, backfired due to lack of understanding of the tribal life and culture. Home distillation of liquor was banned to prevent drunkenness and indebtedness, forgetting that wine was used in ritual and social functions. At the same time, licensed vendors of wine were allowed, and *Sundhis* (wine sellers) and *Sahukars* (moneylenders) were given licences. Drunkenness was not prevented but the tribals took to borrowing to pay for wine. Indebtedness increased and the tribal land was alienated and went to the *Sundhis* and *Sahukars* and other non-tribals. Shifting cultivation was banned and at the same time, free access to protected forests was prohibited. This was not only an encroachment on the tribals' traditional rights but also a denial of their livelihood security, since during the scarcity months they depended on forests for fruits, roots, and other forest produce.

After 1861, the tribal areas were opened up through road construction, which facilitated the use of free tribal labour (*Bethi*) by the administration. Through these roads came contractors, traders, moneylenders,

and others from the plains. These outsiders, with no cultural or traditional links with tribals (the Bisoyis, Patras and Paikas or soldiers of former Rajas), became instruments of exploitation. The new waves of migration to tribal areas, by their very nature, brought bitterness and conflicts (Majumdar 1997).

After India's independence, a number of welfare measures have been undertaken. However, there still remains a lot to be achieved, especially in matters concerning food security, employment, sustainable livelihood, access to protected forests for minor forest produce through joint forest management, and involvement of traditional tribal heads in matters of their own development.

1.5.3 Language, Culture and Education: Moving Towards Unified Orissa

A common language has been a force in uniting people belonging to different ethnic groups. The Oriya language, which evolved between the 7th and 11th centuries and reached its final form in the 12th century, was formed by the synthesis of Aryan, Dravidian, and Munda group of dialects. Oriya is spoken by nearly 81 per cent of the Orissa's population. A large number of tribal languages are also spoken in the state. It should not be inferred from this that all the tribes speak independent languages, since for more than 50 per cent of the tribals in Orissa, Oriya is the sole mother tongue. Even among the rest, a sizeable number are bilingual, with Oriya being used as a language for communication between tribes (Das Mohapatra 1997).

Soon after the emergence of Oriya as a distinct language, a vast religious literature was developed by various sects, namely the Shaivas, Nathas, and Vaisnavas. Jagannath Das's *Bhagabat* was written in a simple and lyrical style that could be understood by the common man, and was held in great respect and recited in every village in rural Orissa. In order to read the *Puranas* and *Bhagabat*, it became necessary to become literate, which led to the spread of literacy among common people. In every village in Orissa,

there was a 'Chatsali', a village school, privately organised and funded by the local people. It was located in any vacant place, *mandaps*, cowsheds, *verandahs*, or village *Bhagabat tungis* (huts). As a consequence, literacy among boys, and to a lesser extent among girls, spread in villages.

According to the 1881 census, Orissa Division (Balasore, Cuttack, Puri) of the Bengal Presidency had a literacy rate of 7.03 per cent, the highest when compared to other Presidencies such as Bengal (1.5), Bombay (1.56), and Madras (1.70). This was even higher than the literacy rate prevailing in some European countries like Italy, Portugal, and Russia (Das Mohapatra 1997) during that period.

English education began in Orissa nearly a century after it was introduced in Bengal and Madras Provinces. The English officials were keen to introduce English in Orissa, as they could not find a single Oriya to fill government posts due to the latter's lack of knowledge of the English language. Almost all posts were filled by Bengalis who had little interest in the welfare of the local people. In 1841, an English school, 'Cuttack School', was established. From 1841 to 1853 there was only one secondary school in Orissa. By 1870–71, there were 17 English schools and 113 vernacular (Oriya) schools catering to the needs of 5,790 pupils (Das Mohapatra 1997).

The spread of English education and the exposure to Western ideas made the educated Oriyas aware of their great heritage. They made a united stand to stop the plan of some Bengali officials to deny Oriya the status of a separate language and to declare it as a dialect of Bengali. Conscious of the utter neglect of Orissa and the lack of connectivity with the neighbouring regions (the reason why millions in Orissa division died in the great famine of 1866), the Oriyas agitated for a separate Province by unifying all Oriya tracts scattered in the neighbouring three Provinces. Being a microscopic minority in each of these Provinces, the voice of the Oriyas had never been heard and they had been subject to neglect

and discriminatory treatment. All the agitating Oriya organisations united and formed the 'Utkal Sammilani' (Oriya Conference) under the leadership of Madhusudan Das and supported by eminent persons. Their continuous agitation bore fruit when, on 1 April 1936, Orissa became a separate Province, comprising seven districts. With the merger of 24 feudatory states in 1948 and 1949, Orissa regained its natural geographical boundary. The young Province had to struggle to put in place a common administrative system and uniform revenue laws (Samal 1989).

After India's independence, and especially after the introduction of the Five-Year Plans, considerable progress has been achieved in education at all levels. Despite this, the historical disparity in development between coastal and non-coastal districts and between tribal and non-tribal areas has not reduced. The development of modern health care facilities began in 1873 with the establishment of a medical school. After independence it was upgraded to a Medical College, and two more Medical Colleges were added subsequently. An elaborate machinery of health care was also set up to provide health care facilities to rural areas, backward districts, and remote hilly areas. Unfortunately, the healthcare system could not achieve much success due to a paucity of funds, equipment and medicines, and the unwillingness of doctors to be posted to these areas because of lack of incentives and residential facilities.

Orissa, thus, inherited several historical disadvantages at the time of independence. Apart from a planned effort at development of the state, there is a need to build a new edifice on the foundation of equity and justice with a view to achieving *bahujana hitaya*, *bahujana sukhaya* (welfare for all, happiness for all).

1.6 Agro-ecological Backdrop: The Challenge of Nature

Orissa possesses a varied physiography due to its rather peculiar geographical location and wide range of physical features. The extensive ranges of

hilly forests, several lofty peaks, rolling uplands, long stretch of coastline, extensive riverine system, brackish waters, coastal mangroves, and coastal plains together have endowed the state with a wide range of ecological habitats for a diverse and broad spectrum of flora and fauna.

On the basis of physical features and agro-climatic conditions, it is possible to divide the state into four zones:

- (i) Northern Plateau (constituting 18.3 per cent of the state's area and comprising undivided Keonjhar, Mayurbhanj, and Sundargarh districts). This region is characterised by hill ranges rising to elevations of 2000 to 3000 feet above sea level.
- (ii) Central Table Land (constituting 23.9 per cent of the state's area and comprising undivided Balangir, Dhenkanal, and Sambalpur districts). This region is generally flat with slightly undulating and folded topography, rising to an elevation of 1000 feet.
- (iii) Eastern Ghats (constituting 32.0 per cent of the state's area and comprising the undivided districts of Kalahandi, Kandhamal, and Koraput). This region is dominated by hill ranges along with some plains and valleys lying between them, with elevation of plateaus ranging from 900 feet to 2000 feet.
- (iv) Coastal Plains (constituting 25.8 per cent of the state's area and comprising the undivided districts of Balasore, Cuttack, Ganjam, and Puri). This region consists of a number of river deltas.

The distinctive aspect, which clearly differentiates the agro-ecological conditions of the above-mentioned four zones, is the topographical feature of land. It is significant to note that for the state as a whole, highland constitutes as much as 45.8 per cent of the cultivated area (Table 1.3). This is significantly higher in the Eastern Ghat region (64.2 per cent). In the Northern Plateau and Central Table Land, highland constitutes half of the cultivated area. On the other hand, in the Coastal Plains, highland constitutes 29.2 per cent and lowland constitutes 36 per cent of the cultivated area.

Table 1.3
**Topographical Features of Land,
 1995–96**

Zone	Percentage of cultivated area under		
	High land	Medium land	Low land
Eastern Ghat	64.2	21.9	13.9
Northern Plateau	50.6	30.1	19.3
Central Table Land	49.4	29.1	21.5
Coastal Plain	29.2	34.8	36.0
Orissa	45.8	29.9	24.3

Source: Computed from data in Government of Orissa (1998), *Agricultural Statistics of Orissa, 1995–96*, Directorate of Agriculture and Food Production, Bhubaneswar.

The intrinsic fertility of the residual soil of the highlands is low, since these are predominantly lateritic, highly leached, acidic, and low in nitrogen and organic matter. They are also shallow, sandy, and susceptible to erosion. Because of the porous nature of the highland soil and its topography, its moisture retention capacity is rather low. Along with poor intrinsic fertility, this makes the highlands suitable only for low water-intensive crops. The transported alluvial soil of the lowlands is moderately fertile, less acidic, more productive than the residual soil, and has a higher moisture retention capacity. It is, thus, suitable for paddy cultivation. Highland Orissa is drained by a number of major rivers, which have given rise to fertile river valleys suitable for paddy cultivation.

The state receives about 1500 mm (60 inches) of rainfall normally, with a variability of 25–30 per cent. About 77 per cent of the rainfall comes from the south-west monsoon (June to September). However, the south-western districts of Kalahandi, Balangir, and Koraput fall in the rain shadow zone of the south-west monsoon and hence receive highly erratic rainfall.

The coastal region presents a virtual mono-cultural landscape and the predominant crop, paddy, is grown in two-crop combinations with pulses, oilseeds, or jute. Paddy is also the most important crop in highland Orissa and is widely cultivated in river valleys. A large number of miscellaneous crops such as coarse millets, pulses, oilseeds, jute, and sugarcane are also grown.

Barring the river basins, which comprise of fertile parts of the region, population density in much of the highland Orissa is quite low compared to the coastal plains and this also broadly corresponds to the level of agricultural productivity.

The ecological conditions in Orissa have been conducive to large tracts of natural vegetation. Bamboo and sal forests abound in this region. Forests yield a wide range of ‘minor’ products that provide livelihood support to the original inhabitants of this region almost throughout the year. Beside forest resources, most of the major mineral deposits are also found in this region.

Table 1.4
Actual Forest Cover Based on Satellite Data, Orissa

Year	Total forest area as per cent of total geographical area (nominal forest cover)	Closed forest area as per cent of total forest area (extent of forest degradation)	Closed forest area per cent of total geographical area (effective forest cover)
1972–75	31.07	77.03	23.97
1980–82	25.32	73.08	18.5
1990–91	30.32	57.94	17.56
1995	30.25	30.25	17.44
1996	30.15	30.15	16.76

Source: For the first two time points, Government of Orissa, *Monitoring Forests of Orissa by Remote Sensing*, Orissa Remote Sensing Application Centre, Department of Science, Technology and Environment, p. 4; for later points of time, Forest Survey of India, *The State of Forest Report 1991, 1995, 1996*, Dehradun.

The specific agro-ecological conditions of the state define the broad contours of livelihood options for its people. These conditions, however, are not static and are liable to change according to the patterns of human intervention and the modes of utilisation of natural resources. As a result, the natural conditions of production and livelihood security can come under increasing threat due to deforestation and soil erosion, floods, water logging and soil salinity, as well as vulnerability to cyclonic storms.

The trend in *effective* forest cover (i.e., closed forest area having crown density of more than 40 per cent of total geographical area) as against *nominal* forest cover (i.e., total forest land as per cent of total geographical area) can be seen from the satellite data on forest cover, available from the early 1970s. Table 1.4 shows that even by 1972–75, the *effective* forest cover was only 24 per cent. In the course of the next 24 years or so, the nominal forest cover remained constant at around 30 per cent, but the *effective* forest cover dwindled to less than 17 per cent. This is due to the unchecked degradation of forest cover. This has resulted in a decrease in the closed forest area (as per cent of total forest area) from 77 per cent during 1972–75 to 30 per cent by 1996. At the level of districts, it is only in the districts of Mayurbhanj and Kandhamal that the *effective* forest cover has remained at around 30 per cent.

Increased degradation of forests has resulted in increased vulnerability to droughts and floods. The land is more prone to droughts due to the increased moisture stress as a result of more rapid run-off of rainwater. On the other hand, due to increased sediment load, the delta channels are unable to discharge the floodwaters to the sea, thus resulting in floods. Moreover, drainage congestion in the coastal deltas renders large areas of land waterlogged throughout the year.

Finally, because of the geographical location, the coastal areas remain susceptible to cyclonic storms

originating in the Bay of Bengal. The destruction of coastal mangroves has probably increased this susceptibility.

Box 1.2 Correspondence between Old and New Districts of Orissa	
Old district	New district(s)
Balasore	Balasore
	Bhadrak
Balangir	Balangir
	Sonepur
Cuttack	Cuttack
	Jagatsinghpur
	Jajpur
	Kendrapara
Dhenkanal	Angul
	Dhenkanal
Ganjam	Gajapati
	Ganjam
Kalahandi	Kalahandi
	Nuapada
Phulbani	Boudh
	Kandhamal
Keonjhar	Keonjhar
Koraput	Koraput
	Malkangiri
	Nabarangpur
	Rayagada
Mayurbhanj	Mayurbhanj
Puri	Khurda
	Nayagada
	Puri
Sambalpur	Bargarh
	Deogarh
	Jharsuguda
	Sambalpur
Sundargarh	Sundargarh

Note: See Maps 1.1 and 1.2 for visual clarification.

1.7 Creation of New Districts in 1992: A Note

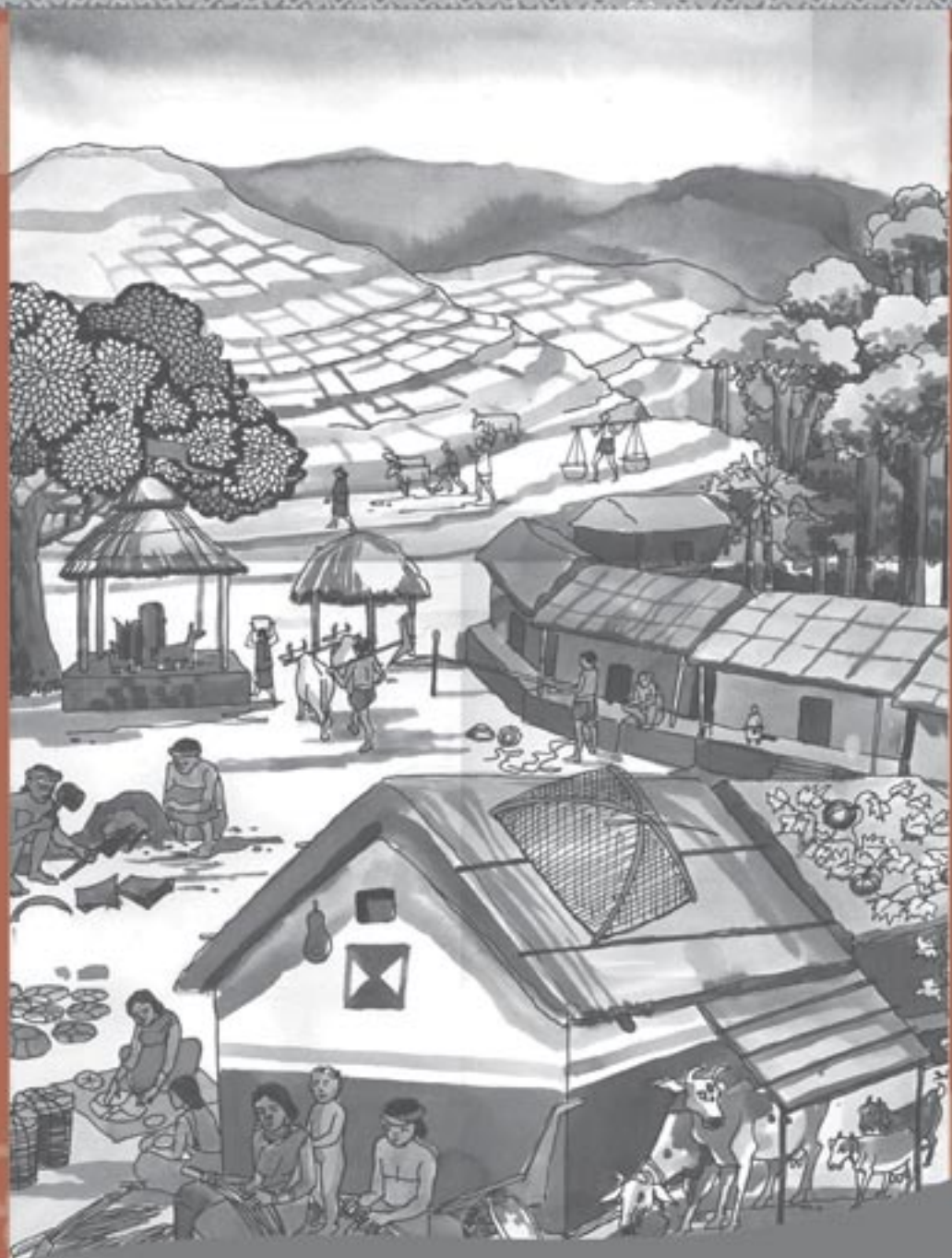
After independence there were 13 districts in the state. The average area of a district was 11,977 sq. km. with an average population of 2.44 million. For the sake of administrative convenience, and for a more effective implementation of development programmes. Orissa has been divided into 30 districts since 1992. Three districts, namely, Keonjhar, Mayurbhanj, and Sundargarh were, however, not altered. Box 1.2 provides an equivalence between old 13 districts (pre-1992) and 30 districts (post-1992).

From the viewpoint of this study, the creation of 30 districts in 1992 is significant because the data sets that provided district-level statistics pertaining

to the pre-1992 years were with reference to the 13 old districts. The most notable case in this respect was the Census of 1991. Post 1992, certain government statistics were made available for the 30 newly created districts, including those that were computed specifically for these new districts, such as the estimates of district domestic product. The Census of 2001 has collected data on the 30 newly created districts, but only some of the information is presently available, while the rest is awaited. In a few cases, e.g. literacy rates, it has been possible to arrive at figures for the 30 districts from the 1991 Census data. Similarly, the rate of growth of population between 1991 and 2001 has been worked out for the 30 districts.



CHAPTER 2 **Growth, Poverty,
and Livelihood**



Growth, Poverty, and Livelihood

The rate of growth of an economy is a simple and summary measure of how quickly the average income of the population is rising. Though the percolation effect of growth is not automatic, it has been observed that poor growth is a major cause of continuing high poverty and that strong growth in general, and strong agricultural growth in particular, has a perceptible poverty-reducing impact.

2.1 Trend in Relative Per Capita Income of Orissa

One way of gauging the differential growth experience of Orissa as compared to that of other relevant states is by looking at the trend in the relative per capita income obtained by expressing the per capita income of Orissa as a percentage of the per capita income of these states. This is presented in Table 2.1.

Table 2.1
Per Capita Net State Domestic Product at Factor Cost of Orissa as per cent of that of Punjab/Bihar/M.P/Rajasthan/U.P/All India, 1980-81 to 2000-01 (at 1993-94 prices)

Year	Three Year Moving Averages					All India
	Punjab	Bihar	M.P.	Rajasthan	U.P.	
1981-82	44.20	112.79	76.74	89.59	93.60	71.67
1982-83	44.08	112.10	77.32	84.98	93.82	71.25
1983-84	43.39	108.09	78.46	83.63	92.64	70.07
1984-85	44.46	109.94	83.07	87.69	97.83	72.37
1985-86	42.91	106.26	85.97	90.37	97.60	71.53
1986-87	41.95	108.30	84.23	93.31	96.89	71.18
1987-88	42.55	110.08	85.37	87.53	96.25	71.54
1988-89	43.28	117.30	86.28	87.18	97.75	72.41
1989-90	42.18	112.76	82.29	77.12	93.68	69.05
1990-91	40.25	112.24	80.51	76.10	91.02	66.32
1991-92	37.63	110.00	75.12	69.11	86.23	62.12
1992-93	38.02	120.48	76.94	73.79	91.05	63.32
1993-94	37.72	123.31	74.71	70.82	92.49	61.65
1994-95	38.34	130.04	74.64	71.90	95.45	60.88
1995-96	37.01	127.23	72.41	65.81	90.77	57.18
1996-97	37.01	128.93	71.82	63.25	91.25	56.01
1997-98	36.15	124.77	69.95	59.84	90.73	54.08
1998-99	36.51	127.95	70.67	60.25	94.44	54.21
1999-2000	34.98	NA	NA	61.49	92.41	52.00

Note: NA refers to 'Not Available'

Source: EPW Research Foundation (2003), *Domestic Product of States of India: 1960-9-61 to 2000-01*, Mumbai (INDIA).

Table 2.1 shows that the relative per capita income of Orissa has declined vis-à-vis all other low-income states during the second half of the 1990s. When compared to all-India values, Orissa's per capita income was three-fourths of that of all-India at the beginning of 1980s and became half by the end of 1990s. The contrast becomes even more stark when comparisons are made with the performance of states which experienced growth rates higher than the national average. For instance, the per capita income of Orissa is one-third that of Punjab.

2.2 Rate of Growth

For examining the actual rate of growth, it is useful to look at the long-term rate of growth as well as growth over successive periods. This data is presented in Table 2.2. For the period 1950–51 to 1988–89, the long-term rate of growth of the Net State Domestic Product (NSDP) was 2.98 per cent and the per capita NSDP was only 0.99 per cent; it is only in the 1980s that NSDP and per capita NSDP have grown relatively impressively, at 3.97 and 2.15 per cent respectively. This has been possible because of high rates of growth in all segments of the economy (Table 2.2).

Table 2.2
**Growth Rates of NSDP and its Sectors in Orissa, 1950–51 to 1988–89
(at 1970–71 Prices)**

Sectors	1950–51 to 1959–60	1960–61 to 1969–70	1970–71 to 1979–80	1980–81 to 1988–89	1950–51 to 1988–89
Primary Sector	1.28	3.87	(-) 0.99	3.51	2.43
Agriculture	1.56	3.73	(-) 1.26	3.33	2.38
Forestry and Logging	(-) 6.21	5.57	(-) 0.27	5.00	2.34
Fishing	(-)13.88	12.47	6.18	7.41	1.62
Mining and Quarrying	10.56	5.42	2.78	5.34	6.29
Secondary Sector	8.52	5.17	5.99	3.35	4.60
Manufacturing					
(i) Registered	5.99	16.49	5.48	6.37	7.06
(ii) Unregistered	4.14	0.66	3.71	0.38	1.28
Construction	21.14	(-)2.84	9.61	(-) 2.66	4.90
Electricity, Gas and Water Supply	1.20	11.24	5.26	7.29	6.89
Tertiary Sector	4.74	3.90	2.34	5.26	4.07
Transport, Storage, and Communication					
(i) Railways	5.52	5.49	4.66	4.43	4.66
(ii) Transport by other means and Storage	4.25	7.68	3.96	5.62	5.48
(iii) Communication	8.71	2.80	5.87	12.18	6.94
Trade, Hotels, and Restaurants	6.70	5.78	(-) 0.36	3.55	4.23
Banking and Insurance	12.58	12.20	10.23	14.52	11.75
Real Estate	-1.12	0.27	3.68	4.78	1.78
Public Administration	6.77	6.45	5.75	6.63	6.24
Other Services	5.20	0.46	1.51	2.04	2.12
NSDP	2.51	4.01	0.73	3.97	2.98
Per capita NSDP	0.63	1.72	(-) 1.20	2.15	0.99

Source: Estimates provided by Directorate of Economics and Statistics, Planning and Coordination Department, Government of Orissa, Bhubaneswar.

The long-term rate of growth of agriculture has been low at 2.38 per cent, lower than that of the secondary and tertiary sectors. Only the tertiary sector has shown consistent growth, at more than 3 per cent through successive decades. All the components of the tertiary sector, except 'Real Estate' and 'Other Services', have grown impressively.

Aggregate as well as sectoral growth rates for the entire period 1980–2000 as well as for the two decades of the 1980s and the 1990s (all at 1980–81 prices) have been presented in Table 2.3. It is

a matter of concern that growth in agriculture and animal husbandry slowed down in the 1990s to about 2 per cent. Within the primary sector, only the mining and quarrying sub-sectors have improved upon their already high rate of growth in the 1980s. The tertiary sector alone has been able to maintain its high rate of growth through the 1990s. Per capita NSDP has grown at about 2.4 per cent per annum in the 1990s—historically, the highest rate of growth of per capita NSDP achieved (Government of India 2002c, pp. 74–76).

Table 2.3
**Growth Rates of NSDP of Orissa and its Sectors from 1980–81 to 1999–2000
(at 1980–81 prices)**

Sectors	1980–81 to 1989–90	1990–91 to 1999–2000	1980–81 to 1999–2000
Primary Sector	3.039*	3.453*	1.481*
Agriculture and Animal Husbandry	3.075**	1.909*	0.398
Forestry and Logging	(-)2.723*	(-)1.262*	(-)3.371*
Fishing	9.080*	8.519*	9.591*
Mining and Quarrying	8.721*	12.700*	11.946*
Secondary Sector	7.059*	(-)2.936	2.73
Manufacturing (Registered)	15.164*	(-)19.154*	(-)0.463
Manufacturing (Unregistered)	2.558**	8.025*	3.306*
Construction	3.548*	0.488	4.267
Electricity, Gas and Water Supply	5.171*	(-)2.920*	3.524*
Tertiary Sector	6.626*	6.712*	6.015*
Railways	12.812*	4.688*	10.631*
Transport by Other Means and Storage	11.904*	6.710*	7.833*
Communication	7.889*	13.689*	8.820*
Trade, Hotels and Restaurants	5.661*	6.753*	5.478*
Banking and Insurance	14.537*	9.785*	11.261*
Real Estate, Ownership of Dwellings and Business Services	2.801*	2.800*	2.743*
Public Administration	7.555*	6.166*	5.696*
Other Services	7.489*	7.247*	6.887*
NSDP	4.795*	3.846*	3.346*
Per Capita NSDP	2.923*	2.369*	1.589*

Note: (i) *Significant at 1 per cent level of significance.

(ii) **Significant at 5 per cent level of significance.

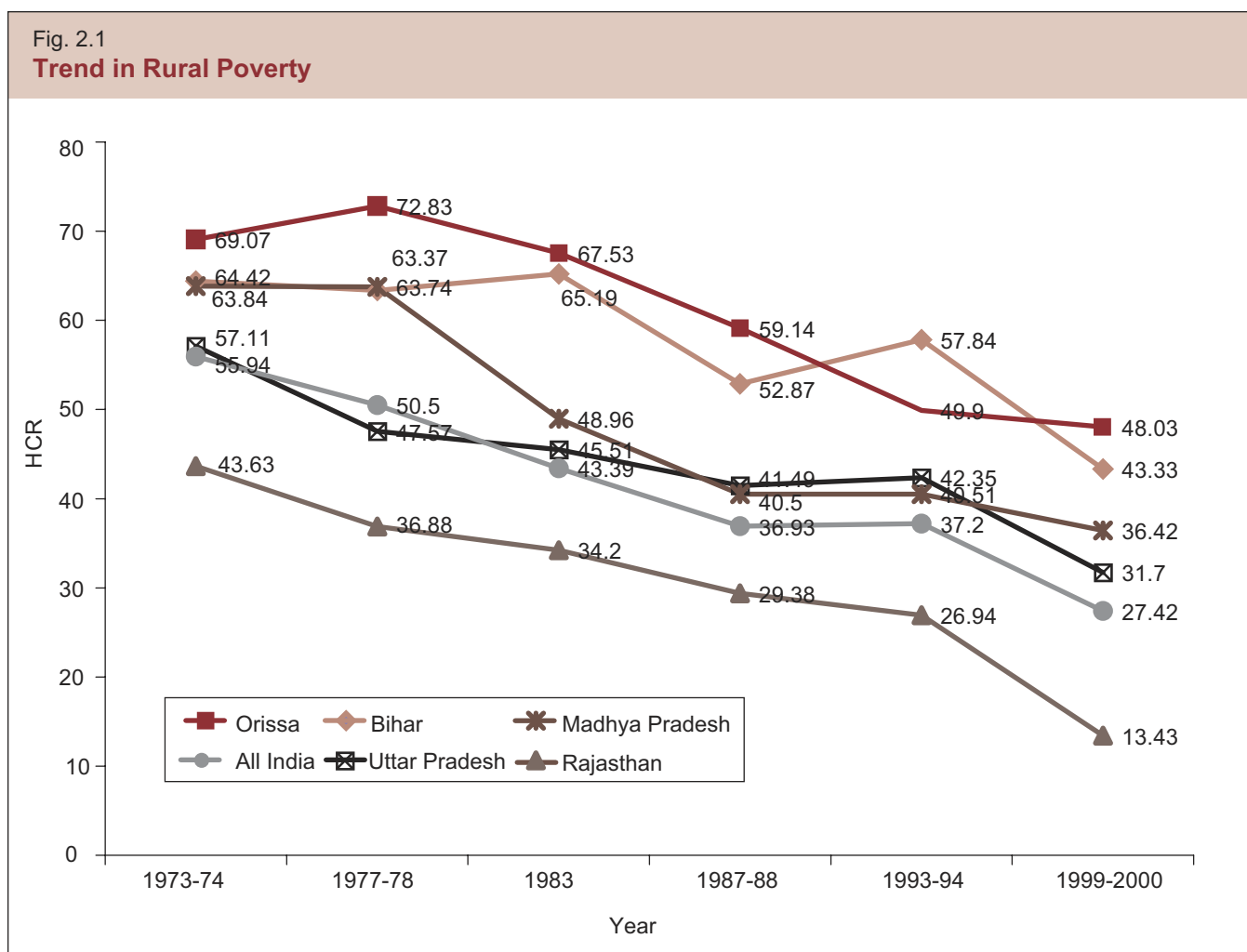
Source: (i) Central Statistical Organisation (CSO), *Estimates of State Domestic Product*, New Delhi, various years; (ii) Government of India (2002), *Orissa Development Report*, Planning Commission, New Delhi, prepared by Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, p. 75.

2.3 Trend in the Incidence of Poverty

The long-term trends in the incidence of poverty in Orissa, in other low-income states and all-India are shown in Fig. 2.1 (rural) and Fig. 2.2 (urban). Here, the focus is confined to rural poverty. It is found that there has been a steady decline in the poverty ratio in Orissa between 1977–78 and 1993–94. In the second half of the 1990s, poverty ratio has remained almost stationary. This is quite unlike the experience of other low-income states and all-India (Fig. 2.1), and is perhaps due to the poor agricultural growth performance of Orissa. However, there is an immediate and straightforward explanation for the stagnation of rural poverty ratio during the second half of the 1990s.

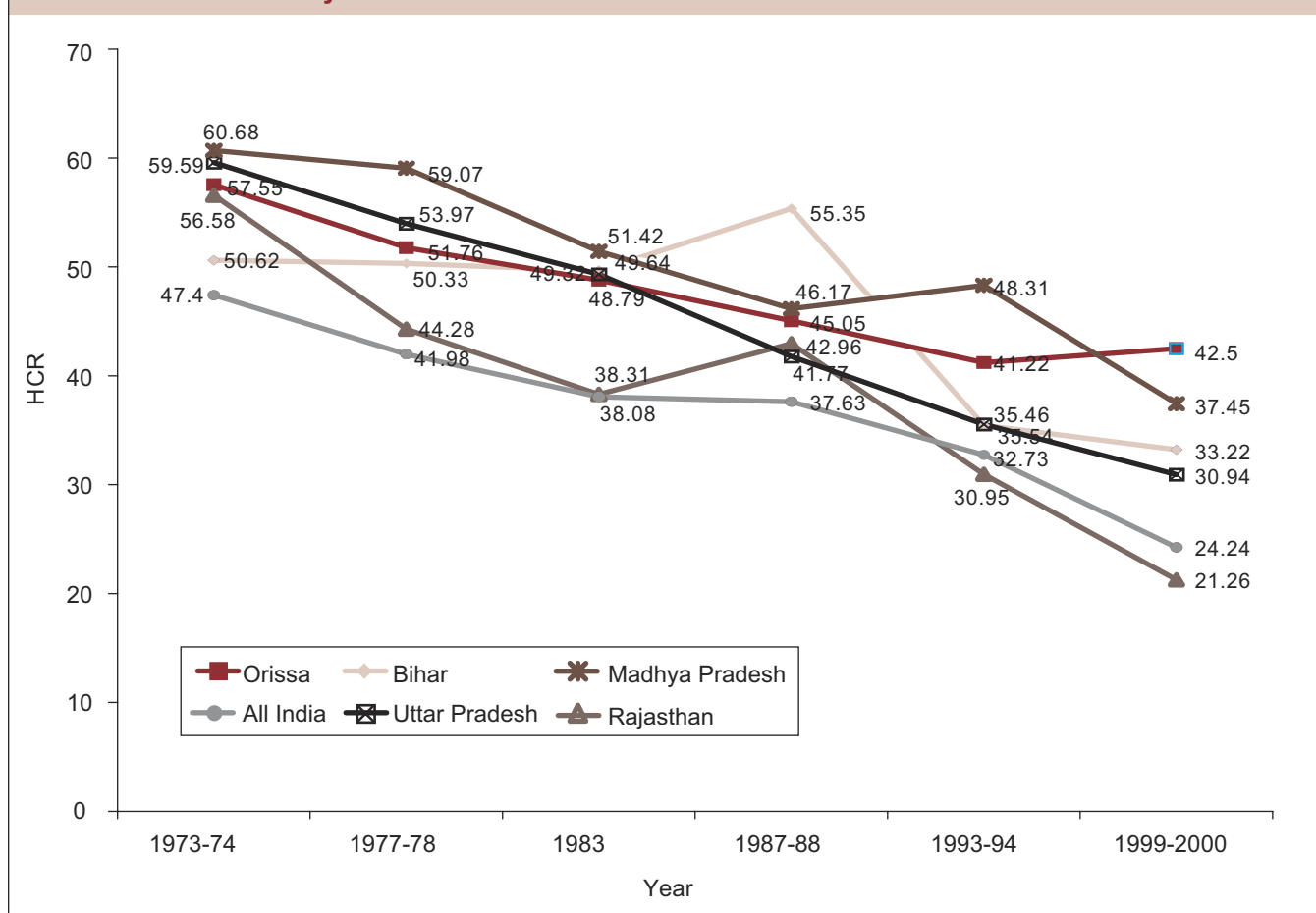
This has to do with the regional trends in poverty ratio (Table 2.6). The poverty ratio in southern and northern NSS regions of Orissa has in fact increased between 1993–94 and 1999–2000, unlike the earlier period (1987–88 to 1993–94), and since almost 75 per cent of the state’s poor belong to these regions, this has influenced the overall poverty ratio.

Table 2.4 presents the rate of decline in the poverty ratio over the period 1973–74 to 1999–2000. The rate of decline in the poverty ratio of Orissa has been the second lowest even when the absolute poverty ratio was a high of 69.07 per cent in 1973–74 to start with.



Source: Estimates provided by M. H. Suryanarayana, based on NSS consumer Expenditure Surveys, various years, Indira Gandhi Institute for Development Research, Mumbai.

Fig. 2.2
Trend in Urban Poverty



Source: Estimates provided by M. H. Suryanarayana, based on NSS consumer Expenditure Surveys, various years, Indira Gandhi Institute for Development Research, Mumbai.

2.4 Spatial and Social Dimensions of Poverty

Two spatial aspects of poverty are noteworthy. Firstly, poverty in Orissa is overwhelmingly a rural phenomenon. Thus, in 1987–88, the share of urban poor in the total number of poor in Orissa was 9.7 per cent, the lowest among all the major states of India except Assam. In fact, there were as many as seven major states in India where the incidence of urban poverty was lower than that of Orissa (namely, 37.4 per cent), but the proportion of urban poor to total number of poor was much higher in these states.

Second, there are very significant regional differences in the incidence of poverty within Orissa. This is brought out by the NSS region-wise estimates of

poverty. As can be seen from Table 2.5, the rural poverty ratio in the southern region is more than two and half times that of the coastal region and the ratio in the northern region more than one and half time that of the coastal region. These regional differences in the incidence of poverty capture differences in the degree of economic deprivation of different ethnic groups and their spatial concentration. Thus, the incidence of poverty among Scheduled Caste (SC) and Scheduled Tribe (ST) population in the southern and northern region is very high—it is in these regions that 88.56 per cent of the state’s ST population and 46.23 per cent of the state’s SC population reside.

In the case of the rural ST population, the incidence of poverty in Orissa, at 71.51 per cent (1993–94),

Table 2.4
Rate of Decline in Poverty Ratio in States and All-India, 1973–74 to 1999–2000

State	Average annual percentage decline between 1973–74 and 1999–2000
Andhra Pradesh	1.37 (46.94)
Assam	0.52 (52.64)
Bihar	0.81 (64.42)
Gujarat	1.27 (45.67)
Haryana	1.03 (34.78)
Karnataka	1.46 (55.32)
Kerala	1.91 (59.18)
Madhya Pradesh	1.05 (63.84)
Maharashtra	1.37 (58.96)
Orissa	0.81 (69.07)
Punjab	0.87 (28.84)
Rajasthan	1.16 (43.63)
Tamil Nadu	1.42 (57.67)
Uttar Pradesh	0.98 (57.11)
West Bengal	1.58 (72.96)
INDIA	1.10 (55.94)

Note: Figures in parentheses indicate the poverty ratios for the year 1973–74.
Source: Estimates provided by M. H. Suryanarayana, based on NSS consumer Expenditure Surveys, various years, Indira Gandhi Institute for Development Research, Mumbai.

was the highest among the 16 major states of India. It was 51.96 per cent for All-India and, significantly, for Madhya Pradesh (which has the highest concentration

Table 2.5
Region-wise and Social Group-wise Incidence of Poverty, Rural Orissa, 1999–2000

Region	Social groups			
	ST	SC	Others	All
Coastal	66.63	42.18	24.32	31.74
Southern	92.42	88.90	77.65	87.05
Northern	61.69	57.22	34.67	49.81
Orissa	73.08	52.30	33.29	48.01

Note: (i) The estimates of poverty ratio of ST and SC at the level of NSS regions are based on very small samples.

(ii) Coastal region: Balasore, Cuttack, Ganjam, Puri districts;
Northern region: Dhenkanal, Keonjhar, Mayurbhanj, Sambalpur, and Sundargarh districts;
Southern region: Balangir, Kalahandi, Kandhamal, and Koraput districts.

Source: Arjan de Haan and Amaresh Dubey (2003), 'Poverty in Orissa: Divergent Trends? With Some Thoughts on Measurement Issues', mimeo, paper presented at the Workshop on 'Monitoring of Poverty in Orissa', 26–27 February, Bhubaneswar.

of tribal population followed by Orissa among the major states), the incidence of poverty was 56.90 per cent.

Of particular concern is the fact that it is only in the coastal region of the state that the rural poverty ratio has steadily and significantly declined between 1983–84 and 1999–2000. This has happened to a lesser extent in the northern region, whereas in the southern region, the poverty ratio has been fluctuating around a high average value (Table 2.6).

Table 2.6
NSS Region-wise Trend in Poverty Ratio (Rural), 1983–84 to 1999–2000

Region	Year			
	1983–84	1987–88	1993–94	1999–2000
Coastal	57.90	48.40	45.30	31.80
Southern	80.80	83.00	68.80	87.20
Northern	75.20	61.00	45.80	49.80
Orissa	65.29	55.58	48.56	48.01

Source: Arjan de Haan and Amaresh Dubey (2003), 'Poverty in Orissa: Divergent Trends? With Some Thoughts on Measurement Issues', mimeo, paper presented at the Workshop on 'Monitoring of Poverty in Orissa', 26–27 February, Bhubaneswar.



Table 2.7

Region-wise Pattern of Distribution (as per cent of rural population) of Rural Poor and Non-poor Relative to the Poverty Line, 1993–94

Region (1)	Very poor (2)	Moderately poor (3)	Poor (4)	Lowest non-poor (5)	Upper non-poor (6)	Non-poor (7)
Coastal	19.03	26.33	45.36	36.56	18.08	54.64
Southern	34.08	34.94	69.02	24.10	6.87	30.97
Northern	18.99	26.65	45.64	33.42	20.94	54.36
Orissa	15.26 (40.08)	21.97 (59.01)	37.23 (100.00)	34.19 (54.96)	28.56 (45.49)	62.77

Note: (i) Figures in parentheses under cols. (2) and (3) refer to percentages of total number of poor, and under cols. (5) and (6) to percentages of total number of non-poor.
(ii) Poverty line for rural Orissa for 1993–94 was defined as per capita monthly expenditure of Rs 194.03.
(iii) Very poor: Percentage of persons below three fourth of the poverty line.
Moderately poor: Percentage persons between three-fourth of the poverty line.
Poor: Percentage of persons below the poverty line.
Lower non-poor: Percentage of persons below one and half times the poverty line.
Upper non-poor: Percentage of persons above one and half times of the poverty line.
Non-poor: Percentage of persons above the poverty line.

Source: (i) Government of India (1997), *Sarvekshana*, Vol. XXI, No. 2, 73rd Issue, October–December (NSS 50th Round, 1993–94), Ministry of Statistics, Planning and Programme Implementation, Department of Statistics, New Delhi; (ii) Government of India (2001), *Census of India: Orissa*, Directorate of Census Operations.

One factor that may partly explain the persistence of a very high incidence of poverty in the southern region of Orissa is the pattern of distribution of the poor and non-poor around the poverty line. The latest available data are presented in Table 2.7, from which it can be inferred that a little more than 40 per cent of the poor belong to the category of ‘very poor’, i.e., those who are below three-fourths of the poverty line. Again, amongst the non-poor, nearly 55 per cent are within one and half time above the poverty line.

Differences in the pattern of distribution of the poor as observed above are, therefore, reflected in differences in the depth, intensity, and severity of poverty as measured by the rural poverty gap and squared poverty gap. Thus, the intensity of poverty in the southern region of Orissa is almost twice as high as it is in the coastal and northern regions (Table 2.8).

Certain characteristics of the NSS regions, which may partly explain the differential in poverty ratios, need to be pointed out. First, the irrigation base of the northern and southern regions is very small as

Table 2.8

Region-wise Intensity of Rural Poverty

Region	Poverty Gap	Squared Poverty Gap
Coastal	10.21	3.22
Southern	18.78	6.82
Northern	10.41	3.43
Orissa	11.83	3.95

Note: Poverty Gap is the percentage difference between the poverty line income/consumption expenditure and the average income/consumption expenditure of the poor. Squared Poverty Gap takes into account expenditure of those below the poverty line.

Source: (i) Government of India (1997), *Sarvekshana*, Vol. XXI, No. 2, 73rd Issue, October–December (NSS 50th Round, 1993–94), Ministry of Statistics, Planning and Programme Implementation, Department of Statistics, New Delhi; (ii) Government of India (2001), *Census of India: Orissa*, Directorate of Census Operations.

compared to the coastal region. The intensity of input use (as measured by the rate of fertiliser use) in the southern region is also about one-fourth and in the northern region one-half of that in the coastal region (Table 2.9).

Recent studies have highlighted two other factors that may have a high poverty-reducing impact: the extent of rural non-farm employment opportunities,



Table 2.9
Gross Irrigation Ratio and Rate of Fertiliser Consumption

Region	GIA/GCA 1993–94 (per cent)	Fertiliser consumption 1996–97 (kg/hectare)
Coastal	29.47	49.35
Northern	13.60	22.75
Southern	11.64	12.76

Note: GIA: Gross Irrigated Area; GCA: Gross Cropped Area.

Source: (i) For GIA/GCA, Directorate of Economics and Statistics, Government of Orissa, Bhubaneswar;

(ii) For fertiliser consumption, Directorate of Agriculture and Food Production, and Government of Orissa, *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, various years.

and infrastructural development. These sharply set apart the southern NSS region of Orissa (see Tables 2.10 and 2.11). Thus, other workers (i.e. rural non-farm employment) constitute 22.86 per cent of rural main workers in coastal Orissa whereas they

constitute only 12.63 per cent of rural main workers in southern Orissa. The infrastructure development index is 122.81 for coastal Orissa whereas it is only 65.87 for southern Orissa (taking Orissa as 100).

It is also possible to estimate the poverty ratios at the district level by pooling the central and state samples of the NSS. These estimates are shown in Table 2.12.

The inter-district disparity in poverty ratio has steadily increased between 1983–84 to 1999–2000, as suggested by the coefficient of variation values (Table 2.12). This means that inter-district disparity in absolute economic deprivation has been rising.

An important indicator of the uneven development at the district level that may have a bearing on the above disparity is the per capita district domestic product (DDP), for which data is presented in

Box 2.1

The KBK Region: A Case of Chronic Underdevelopment

KBK region refers to the three old, undivided districts of Kalahandi, Balangir, and Koraput that have since 1992 been divided into eight districts, and lies in the south-west Orissa. This part of the state has come to occupy a special place in public debates and public policy interventions as being among the poorest regions in the country. This region is a fairly huge landmass: 47,646 sq. km of area, comprising 30.6 per cent of the state's area. Its population, at 6.32 million, constitutes nearly 20 per cent of the state's population; and the SC and ST populations account for 38.7 per cent and 15.8 per cent of the region's population respectively (1991 Census data).

Chronic drought conditions, high levels of food insecurity, and chronic income poverty resulting in absolute hunger, regular distress migration, and periodic allegations of starvation deaths characterize this region. Agriculture is the mainstay of the region's economy and *kharif* paddy cultivation (with very low yield of less than 1.5 tonnes per hectare) is

the principal means of livelihood. However, the rice economy of the region does not provide adequate livelihood to the majority of the agricultural labour or cultivating households.

The promotion of a secure and sustainable livelihood is perhaps the key to improve the economic conditions of the poorest tribal population of this region in the long run. Towards this end, access to irrigation water is an essential input for intensification of agriculture through improved *kharif* paddy yield, cultivation of *rabi* paddy and promotion of new crop combinations. Creation of watersheds and water harvesting structures through public works programmes with a food transfer component can improve water availability as well as provide employment opportunities, besides improving food security. Along with this, access to markets, credit, and extension services need to be facilitated for supporting improvements in agriculture.

Source: (i) Government of Orissa (1998), Health Statistics of Orissa 1998, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar; (ii) Government of India, Sample Registration System Bulletin, Office of the Registrar General, New Delhi, various years.



Table 2.10
Industrial Distribution of Rural Main Workers by Sex (General Population)

(in per cent)

Region	Cultivators			Agricultural labourers			Others		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Coastal	52.40	15.71	48.54	24.12	58.97	28.60	23.49	25.33	22.86
Northern	55.00	29.62	49.31	24.14	53.04	30.60	20.87	17.34	20.09
Southern	58.70	28.01	51.54	28.03	60.89	35.83	13.27	11.10	12.63

Source: Government of India, *Census of India-1991, Series-19, Orissa*, Paper 1 of 1991, Supplement, Table 6 (Provisional Figures).

Table 2.11
**Infrastructural Development Index
 (Orissa=100), 1993**

NSS region	Index value
Coastal	122.81
Northern	87.27
Southern	65.87

Note: The above composite index is based on 14 indicators of physical, economic, and social infrastructure, as in the case of the CMIE index.

Source: Sakti Padhi (2000), 'Orissa Economy: A Database', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, December, p. 32.

Table 2.12
District-wise Poverty Ratio

District	1983	1987-88	1993-94	1999-2000
Balangir	79.83	57.91	42.43	48.79
Balasore	72.15	50.88	33.37	41.39
Cuttack	56.71	43.74	48.96	27.98
Dhenkanal	81.45	54.39	34.68	47.53
Ganjam	56.34	45.22	29.57	18.18
Kalahandi	85.9	84.99	68.19	83.76
Keonjhar	78.27	65.66	62.99	61.92
Koraput	78.2	76.54	57.82	78.65
Mayurbhanj	83.45	64.44	48.19	68.42
Kandhamal	74.57	71.92	75.59	75.42
Puri	49.47	54.99	67.66	45.21
Sambalpur	58.43	54.5	37.78	42.02
Sundargarh	78.31	53.56	45.15	36.48
Mean	71.78	59.90	50.18	51.98
SD	11.67	11.74	14.39	19.39
CV	16.25	19.59	28.67	37.29

Note: (i) SD: Standard deviation; CV: Coefficient of variation.

(ii) The validity of these district-level estimates of poverty ratio is subject to a certain degree of doubt, as they are based on rather small samples. However, it is presumed that they indicate broad orders of magnitude as well as acceptable inter-district differences. On the latter count, these estimates based on pooled NSS Central and state samples seem to be superior to those generated by the Panchayati Raj Department of the Government of Orissa through applying the income method and carrying out a complete census.

Source: Arjan de Haan and Amaresh Dubey (2003), 'Poverty in Orissa: Divergent Trends? With Some Thoughts on Measurement Issues', mimeo, paper presented at the Workshop on 'Monitoring of Poverty in Orissa', 26-27 February, Bhubaneswar.

Table 2.13. Inter-district disparity in per capita DDP is fairly high (CV: 24.29). However, the level of per capita income and poverty ratio across districts of Orissa are weakly correlated with a negative sign (-0.31), which suggests that relatively high growth resulting in high per capita income does not always impact on poverty.

2.5 Livelihood: The Concept and its Significance

Livelihood is the material basis on which life is sustained. Active intervention in the natural world through labour processes and division of labour distinguish livelihood of human beings. Direct production of food or production of goods and services in exchange for food is the ultimate motive of all human activities where production is involved. Production may involve applying simple tools for gathering or collecting food from natural sources such as forestry and fisheries for direct consumption or for exchange. Or it may involve biological processes for producing food grain or non-food crops such as in the case of agriculture.

Table 2.13
Per Capita DDP, 1993–94

Districts	DDP per capita (in Rs)	Rank
Balasore	3615	13
Balangir	4141	10
Cuttack	4493	7
Dhenkanal	6904	2
Ganjam	4463	8
Kalahandi	3727	12
Kandhamal	4547	6
Keonjhar	4169	9
Koraput	4895	5
Mayurbhanj	3917	11
Puri	5052	4
Sambalpur	5433	3
Sundargarh	7763	1
CV	24.29	

Source: Government of Orissa (1999), *District Domestic Product of Thirty Districts of Orissa, 1993/94–1998/99(1993–94 Base), Summary Results*, Directorate of Economics and Statistics, District Income Cell, Bhubaneswar, Orissa.

Sustainable livelihood or livelihood security lies at the heart of food security because without the former, sufficient entitlement to food may not be forthcoming (see Chapter 3). Disruption of livelihood security with resultant non-sustainable livelihood can come about in several ways:

- natural calamities such as drought and floods can destroy livelihood and it can take a long time before livelihood can be put back on a sustainable basis;
- inability of non-food producers in agriculture to find a market for their produce; inadequacy of household income to meet minimum consumption requirements on a continuous basis;
- or mismatch between sustainable yield of a natural resource and, given certain institutional and technological conditions, the ability of a population dependent on such a resource to collect enough of it.

Restoration of livelihood in most of these cases requires community action backed by active intervention by the state agencies.

Thus, it can be seen that livelihood is more fundamental than either growth or poverty: growth that does not promote livelihood security (mainly through the route of creating gainful employment opportunities) can be called into question, and income poverty is only one among several likely forms of livelihood disruption.

2.6 Livelihood Sources and Livelihood Security

In an underdeveloped economy, agriculture and allied activities (animal husbandry, forestry, and fishing) provide the main source of livelihood and employment. With economic growth, a shift of the labour force out of agriculture is to be expected. However, this can take several decades and depends on the rate of increase of labour productivity within agriculture and on the rate of growth of non-agricultural employment opportunities in both rural and urban areas.

Child Labour in Orissa: Livelihood and Deprivation

The economic rationale of child labour is the contribution it makes to household income in the case of poor households. In such a situation, it becomes important to know the nature of work in which a child labourer is engaged and how hazardous it is. Since child labour means educational deprivation, it also becomes equally important to facilitate access to non-formal schooling for child labourers. In Orissa, as per the Child Labour Surveys of 1997, there were altogether 2.15 lakh child labourers in the state working in 1.75 lakh establishments. Out of this, 56.5 per cent were males and 43.5 per cent were females. Female child labourers outnumber male

child labourers in five districts—Sambalpur, Angul, Jharsuguda, Deogarh, and Keonjhar. Of the total number of child labourers (2.15 lakh), 11 per cent were engaged in hazardous occupations and the rest in non-hazardous occupations.

Under the National Child Labour Project, a total of 675 special learning centres had been opened till December 2002 in which 37,614 child labourers were admitted. Out of this, 35,054 had been mainstreamed to formal schools. Thus, only about 17.5 per cent of child labourers in the state were admitted to special learning centres.

Source: Government of Orissa (2004), *Labour Statistics in Orissa, 2003*, Labour Commission, Bhubaneswar.

In rural Orissa, there has been a negligible decline in the share of workers engaged in agriculture (Table 2.14). However, a greater percentage of female workers in rural Orissa are engaged in manufacturing, with the reverse being the case for the rural tertiary sector. In urban Orissa, the tertiary sector provides the bulk of employment for both male and female workers. As in rural Orissa, in urban Orissa as well, a higher percentage of female workers are engaged in manufacturing than male workers. Table 2.14 provides data about the sectoral pattern of employment.

The issue of livelihood security can be addressed by looking at the status of employment, which is presented in Table 2.15. The degree of casual employment is greater in the case of female workers than male workers. This is particularly true of urban Orissa where nearly half of the male workers are engaged in regular wage/salary employment—something that provides maximum livelihood security. In rural Orissa as well, the percentage of male workers with regular employment is greater than it is in the case of female workers.

There has been a decline in the percentage of

workers who are self-employed in both male and female rural workers and a corresponding increase in casual employment between 1987–88 and 1999–2000. In the case of male and female urban workers, there has been a decline in regular employment and a corresponding increase in both self-employment and casual employment in the 1990s. In general, there has been a decline in the share of regular employment for all workers during the second half of the 1990s. Partly reflecting the above trends, there has been a significant marginalisation of the labour force and a squeeze on employment. According to the Census data, between 1991 and 2001, the number of main workers has declined from 10.38 million to 9.57 million, whereas the number of marginal workers has increased from 1.51 million to 4.70 million.

The livelihood pattern of the tribal population in Orissa is rather unique. Its basis has, however, been under threat for various reasons. This has made the tribal people, most vulnerable section of the population from the point of view of sustainable livelihood and livelihood disruption. The section below takes a closer look at the issues related to tribal livelihood.



Table 2.14
Sectoral Pattern of Employment, Orissa

Year	Rural male			Rural female			Urban male			Urban female		
	Agriculture	Manufacturing	Tertiary sector	Agriculture	Manufacturing	Tertiary sector	Agriculture	Manufacturing	Tertiary sector	Agriculture	Manufacturing	Tertiary sector
1983-84	77.65	8.72	11.17	77.12	12.15	7.89	11.58	19.66	55.82	32.75	19.78	38.72
1987-88	74.40	6.30	13.40	74.10	16.50	8.00	2.40	15.80	71.90	14.60	24.30	47.40
1993-94	78.40	5.90	12.10	83.90	6.70	6.70	12.50	16.30	61.50	20.40	20.10	48.70
1999-2000	77.20	5.60	12.50	80.30	12.30	4.60	11.20	17.20	59.10	19.10	22.50	44.0

Note: Figures refers to both main and marginal workers.

Source: Various rounds of NSS.

Table 2.15
Status of Employment, Orissa

Employment status	Rural male			Rural female			Urban male			Urban female		
	1987-88	1993-94	1999-2000	1987-88	1993-94	1999-2000	1987-88	1993-94	1999-2000	1987-88	1993-94	1999-2000
Self-employed	52.9	55.7	48.4	55.5	46.6	49.2	42.1	36.9	41.9	37.5	33.9	46.0
Regular Employed	9.2	6.4	5.8	3.3	1.9	1.3	44.8	48.9	39.9	27.5	38.3	21.8
Casual Employed	37.9	37.9	45.8	41.2	51.5	49.5	13.1	14.2	18.2	35.0	27.8	32.8

Source: Various rounds of NSS.



2.7 Tribal Livelihood and Forest Management Policy

2.7.1 Access to Forests and Sustainable Livelihood

Forests and trees have customarily played a critical role in the livelihoods of the tribal poor in Orissa. The majority of this group depends fully or in part on forest resources to meet their subsistence needs. For them, forests are also a source of construction material, fuel, medicines, animal feed and nutrients for crops. The tribal population thus has an organic link with forests as they depend on forest resources almost throughout the year (Pathy 2003, p. 2834). Many of these rural people are also forest producers, who plant trees along their farm boundaries. It has been estimated that 20–50 per cent of the household income per annum of these households comes from the so-called Non-Timber Forest Produce (NTFP). Also, small scale manufacturing of forest-based products like furniture, tools, and baskets provides an important source of rural non-farm employment to these poor people. For many poor people in the forested and marginal agricultural lands, commercial markets for these forest products offer one of the

few available and sustainable options to overcome/alleviate their poverty.

However, with growing commercialisation and degradation of forest resources, the issue of good forest management and conservation has become increasingly important. In this debate, the role of forest dependent tribal population has been emphasised a great deal as they have a fundamental and long-term interest in forest conservation. (see also Box 2.3).

The declining economic as well as physical access to forest-based food products encompasses questions of both sustainability and equity. Excessive deforestation has begun to threaten not only the soil and water base essential for continued food production, but also the present and future availability of many forest plants and animals that are sources of food. With erosion of customary rights and access to forest resources of the tribal population, the household food security seems to have been endangered. Access to resources is important in terms of supplementing farm production by filling in seasonal shortfalls in food and income, smoothening consumption through out the year and

Box 2.3

Coastal Mangroves of Orissa as a Source of Sustainable Livelihood

Coastal mangrove forest is a distinct and unique component of the coastal wetlands ecosystem. Given the physical and geographical features of the mangrove habitats, it is home to a wide variety of flora and fauna. In addition, it acts as natural barrier against tidal ingress; it controls shoreline and riverbank erosion and performs several other ecological functions.

In Orissa, the mangroves extend from Balasore coast to Puri coast over an area of 211 sq. km. Because of a variety of habitats, microhabitats, and climatic conditions, there is a wide diversity in the flora and fauna of the mangroves of coastal Orissa. While the unique ecological conditions of coastal mangroves are well-known, what is perhaps not

so well-known is the fact that mangroves provide a livelihood support system. However, being an essentially fragile eco-system and given the common access nature of mangrove forests, sustainability of livelihood support has come under threat, thereby undermining livelihood security. Also, lack of viable livelihood options in the 'mainstream' economy tends to generate pressure on mangroves due to a growing population residing in and around it. Thus, there is a need to introduce community-based methods of management of mangroves to conserve their biodiversity and increase their productivity. One way is to address the important question of how to maintain the potentially high economic and ecological value of mangroves in the long run.

Source: VASTAVA (2003), 'Sustainable Livelihood of People Living in and around the Mangrove Forest of Bhitarkanika', mimeo, New Delhi.

providing a buffer during the periods of hardship. Forest-based activities, which provide substantial employment opportunities and income in many rural regions and offer a source of investment in agricultural assets to escape from poverty, have been seriously threatened due to ongoing deforestation. Further, due to inadequate vegetative cover, soil erosion, and silting of the downstream lands and water bodies, the productive capacity of the land has also deteriorated. It has seriously affected agriculture, which is the backbone of the rural economy and household food self-sufficiency. This social and economic disequilibrium has serious repercussions, such as migration, dying out of traditional occupations and artisanship, and disruption of local social institutions and culture.

2.7.2 Livelihood Issues and Joint Forest Management (JFM)

The livelihood sustenance issue essentially rests on the sustainable harvest of forest products including NTFPs that ensures negligible impact on the structure and dynamics of the plant population. Therefore, the present day thinking is more concentrated on ecological sustainability at the harvesting levels. Social organisations, individual decision makers, and markets are equally important as nature in determining whether the ecological requirement of species and eco-systems will be met and their sustainability achieved.

Relationship between man and forests has been changing due to increasing biotic pressures on forests. This is a major contributing factor for forest degradation. It has also affected bio-diversity and threatened livelihood options of several forest dependent communities. Therefore, involvement of people in forest protection and management seems desirable in sustaining and enriching forests as well as in ensuring continuance of forest livelihood options. Joint Forest Management (JFM), one of the key elements of the New Forest Policy (NFP) 1998, marked a shift towards the involvement of forest based communities whose livelihood requirements would be complementary to forest conservation and regeneration.

Even before the Minor Forest Policy was introduced in the state in 2000, the primary collectors had an informal right of collection of NTFPs from the forest floor. Following the resolution on JFM issued during 1993, usufructs like leaves, fodder, grasses, thatching materials, broom grasses, brush wood, fallen lops, tops, and twigs used as fuelwood were made available to the members of the Vana Surakhya Samiti (VSS) free of cost. Other usufructs like leased out NTFPs and kenduleaves can be collected by the members, but this will have to be delivered to the departmental agency/lessee against payment of prescribed wages for collection and delivery. Further, in the new Minor Forest Policy Resolution of March 2000, 68 minor forest produce (MFP) items were handed over to the Panchayati Raj Institution, and as such collection, storage, processing, and sale of which were made free to the primary gatherers and collecting agents and no royalty is levied on these items. No monopoly leases on these 68 items can now be given by the Forest Department (FD).

The implementation of the National Afforestation Programme (NAP) through the Forest Development Agencies (FDA) has made some difference to the costs and benefits of forest protection, particularly for forest fringe dwellers and this may improve the way these people look upon JFM. The JFM guidelines of 1993 also to some extent take care of the problem arising out of uncertainty regarding sharing of future benefits. In addition, provision of Entry Point Activities under NAP–FDA being implemented through VSSs in JFM mode promises to provide both livelihood security and create conditions for long-term economic development of forest fringe villages. However, certain issues still remain to be fully addressed. Whether the JFM has succeeded in bringing under its fold the most vulnerable forest-dependent communities, namely, artisans, head loaders, and podu cultivators, needs to be examined. Finally, participatory practices and sustainability of JFM are closely interlinked, and it should be ensured that policies strengthen this link.

The local communities in a VSS programme are treated as equal partners in forest protection, management, and sharing of benefits. A synergy between a strategy that provides resources to people and encourages them to protect trees on the one hand, and a strategy that encourages building grassroots social capital for ensuring protection and conservation (Saxena 2002a) is sought to be achieved under the National Afforestation Programme, wherein the funds for implementation of the programme are directly placed with the VSSs through FDA and the same is utilised as per the microplan prepared by the VSS members and by joint operation of the account.

2.7.3 Women and Forest-Based Livelihood

There are nearly 14.01 lakh tribal women engaged in forest based occupations. Tribal women perform several community and economic activities, such as collection of firewood, fodder, small timber, and various NTFPs, and are also engaged in primary processing such as leaf-plate making, beedi rolling, broom/mat making besides marketing of NTFPs, fuelwood, leaf plates and brooms. They provide greater support towards forest protection and better management in order to secure sustainable livelihood. Their relationship with forests and livelihood issues indeed are recognised in recent years due to emerging large scale deforestation, shortage of fuel wood, fodder, deteriorating eco-system, unhealthy environment, and increasing deterioration of their basic source of livelihood.

Women have a deep sense of belonging with the trees and forests and have greater knowledge about the forest surroundings, precious species, flora, and their value. In fact, poor women—as gatherers, users, processors, and protectors—contribute substantially to their household economy and food security and immensely benefit in terms of fuelwood, fodder, small timber, various NTFPs, and medicines—thus, they meet their daily survival needs from forests. But, the ongoing deforestation has increased their drudgery in spending more time and having to travel long distances, and has resulted in the collection of inferior fuel, such as dry leaves, twigs, branches, tree roots, shrubs, and weeds.

The majority of tribal women also draw their livelihood in terms of wage employment in the forest-based activities, such as: nursery, plantation, cupping, logging, bush cutting, and road construction. The emerging new institutions [Community Forest Management (CFM)/JFM] at the grassroots level have begun to provide wide opportunities to tribal communities, the poor, and women in particular for their meaningful participation in the forest management through discussions/deliberations, decision making, sharing of benefits for ensuring sustainable source of livelihood and enhancing their level of socio-economic status.

2.7.4 Participation and Perception Regarding Forest Resource Utilisation: A Case Study

A case study of the JFM performance of Dhani South Pancha Mauza Vana Surakhya Samiti in Nayagarh district was undertaken for this Report to know the local people's perception regarding forest management issues having a bearing on livelihood and food security (JFM was introduced in the village in August 1991), and in particular, about the extent of participation of women in forest management. For the case study, 40 households with membership of JFM were purposively chosen. The major findings are as follows:

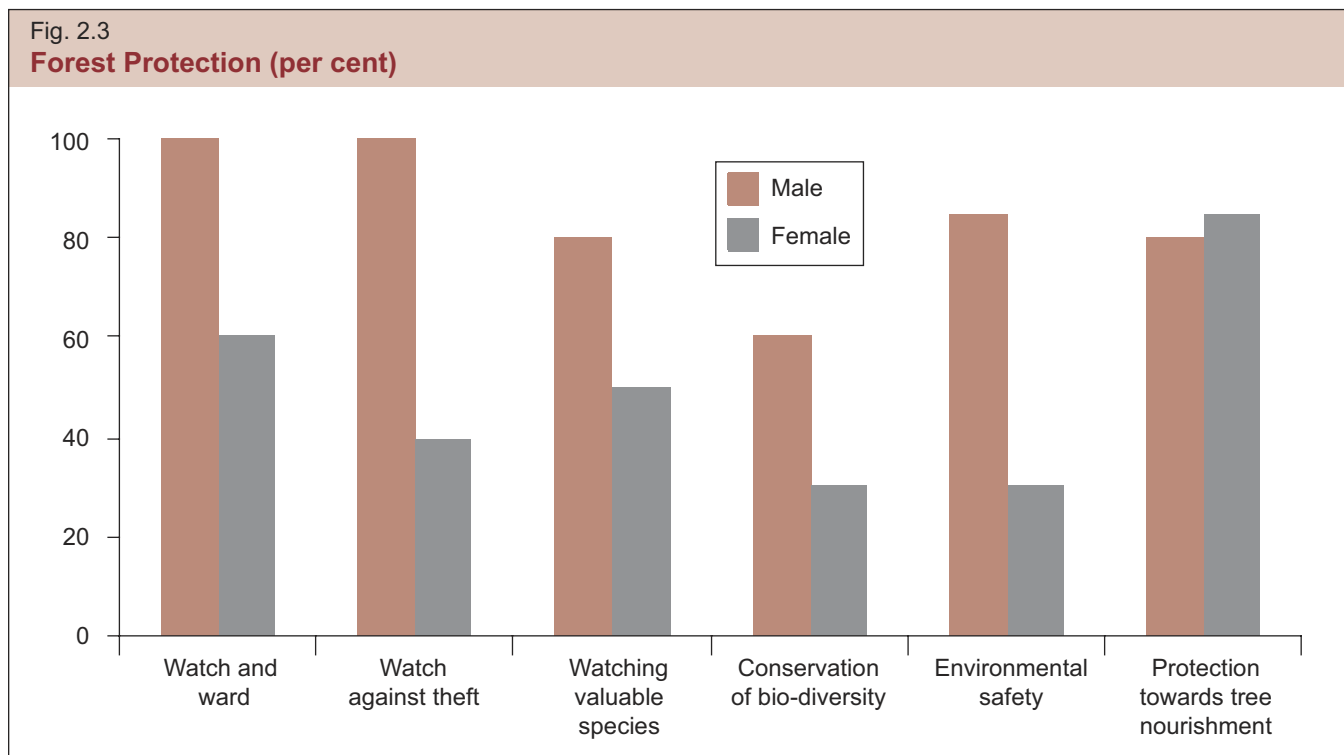
- After JFM was introduced in the village, while one male person is reported to have been engaged for 182 days in collection of forest produce, and 62 days on wage work in forestry activities during one year, a female member is reported to have been engaged for 223 days in collection and 73 days on wage work in forestry activities. This suggests that gainful female employment opportunities are more in forestry activities than that of male members.
- Further, it is reported that the knowledge of male members about flora and fauna is relatively better compared to that of female members. But, more importantly, female members know much more about specific floras that have greater food sustenance.
- Both male and female members reported that they were continuously restricted/prevented for

collection of forest produce (and with great deal of variations over the causes) due to: (a) operation of JFM (100.0 per cent); (b) restricted by rules and regulations (80 per cent); (c) lack of adequate marketing avenues (78 per cent); (d) ignorance about the value addition (43 per cent).

- Very few females (10 per cent) are reported to have undertaken primary processing activities, but at the household level, 85 per cent are engaged in converting mango to mango-dry-pickle and other food items. In the case of medicinal products, 50.0 per cent of them take up processing work for domestic use.
- Only 22 per cent of male and 15 per cent of female respondents reported to have been engaged in processing activities outside the home, such as in rope making and bamboo-based artisan work.
- Interestingly, ten years back, people were covering 14 km to 20 km distance for collection of various types of minor forest produces (MFPs), but, nowadays they reported to have been collecting within 4 km due to regeneration and protection measures through JFM. For marketing purpose however, the distance has remained unaltered, at 7 km from their village.

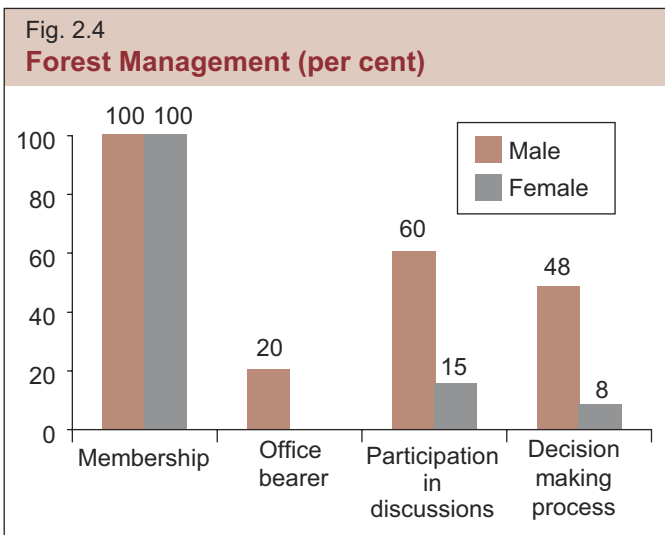
The response to the question posed on the role of male and female members in forest protection was that while 100 per cent male members undertake watch and ward activity, only 60 per cent female members reported to have participated in it. Similarly, participation of male members in watch against theft (100 per cent), watch against extension of valuable species (80.0 per cent), conservation of bio-diversity (60 per cent), environmental safety (85 per cent), protection towards better nourishment of trees (80.0 per cent) is greater as compared to female participation in watch against theft (40 per cent), watch against extension of valuable species (50 per cent), conservation of bio-diversity (30 per cent), environmental safety (30 per cent), and protection towards better nourishment of trees (85 per cent) (Fig. 2.3). The above findings suggest that male members have greater role vis-à-vis female members in various forest protection measures in JFM.

Despite an almost equal number of male and female membership in JFM, a small number of female members (3) in the Executive Committee (25 members in total), has limited the participation of female members (20 per cent) in discussions and deliberations. They have only marginal (8 per cent) participation in decision-



making issues (Fig. 2.4)—thus, remaining away from managerial governance.

Figure 2.5 shows that in regard to various aspects of forest conservation, female members are ahead of their male counterparts in the provision of nourishment of plants and trees as well as in conservation of flora and fauna (92 per cent). However, while females have low participation in reforestation (48 per cent) and creation of awareness (16 per cent), the bulk of them reported to have remained away from overuse of forest resource in the village like the male members (62 per cent).



Female members (84 per cent) have relatively greater advantage in identification and collection of various food products, fuel (92 per cent), fodder (76 per cent), and other products (82 per cent), but only 10 per cent of them are keen to grow and collect medicinal plants, small timber and bamboo, compared to 20 per cent of male members who were growing and collecting the same (Fig. 2.6).

Figure 2.7 shows that on the matter of rights over forest products, all male and female respondents reported as not having rights over the use of forest land/produce, collection of forest produce, and ownership over forest land. But, on issues such as the right to processing and right to marketing, around 70 per cent female members reported to have been of the view that they are not granted rights.

Almost all male and female respondents of the village reported to have expressed their dissatisfaction on the negative attitude of the government on issues such as; continuity of forest land under podu cultivation, refusal to encroachment of forest land for non-forest use, management of forest land by local communities and ensuring adequate protection to

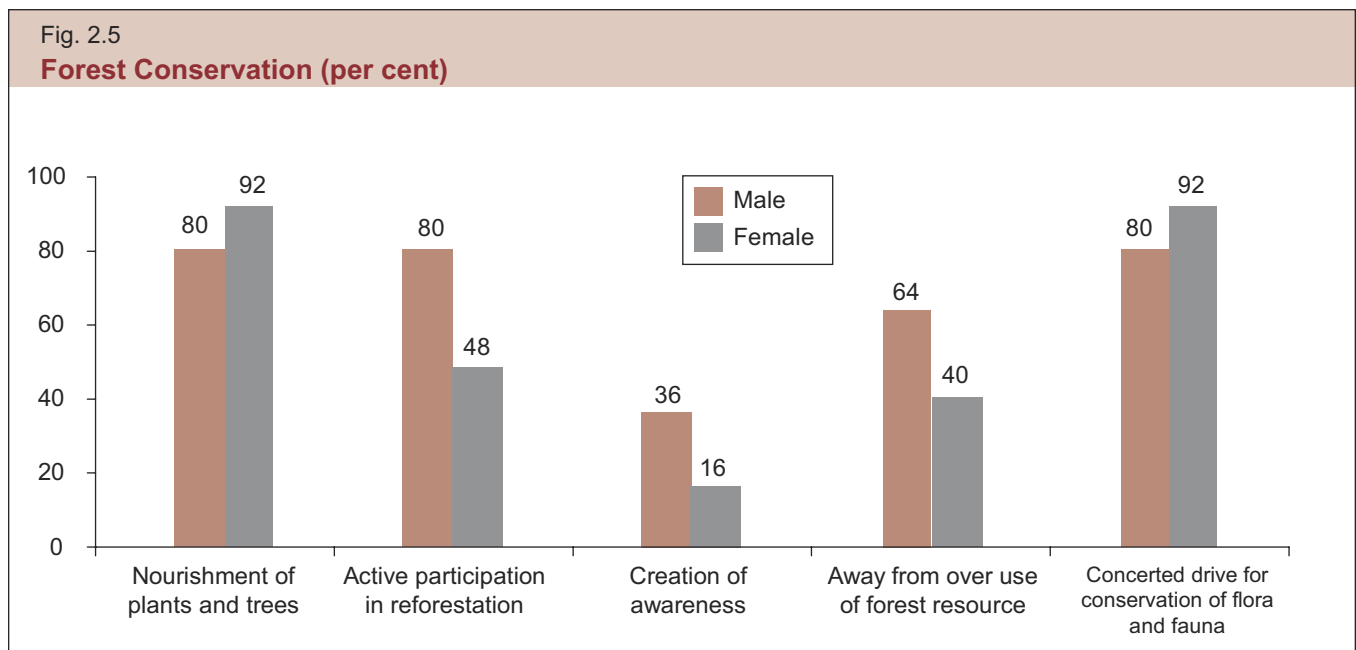


Fig. 2.6

On Identification, Location, and Collection (per cent)

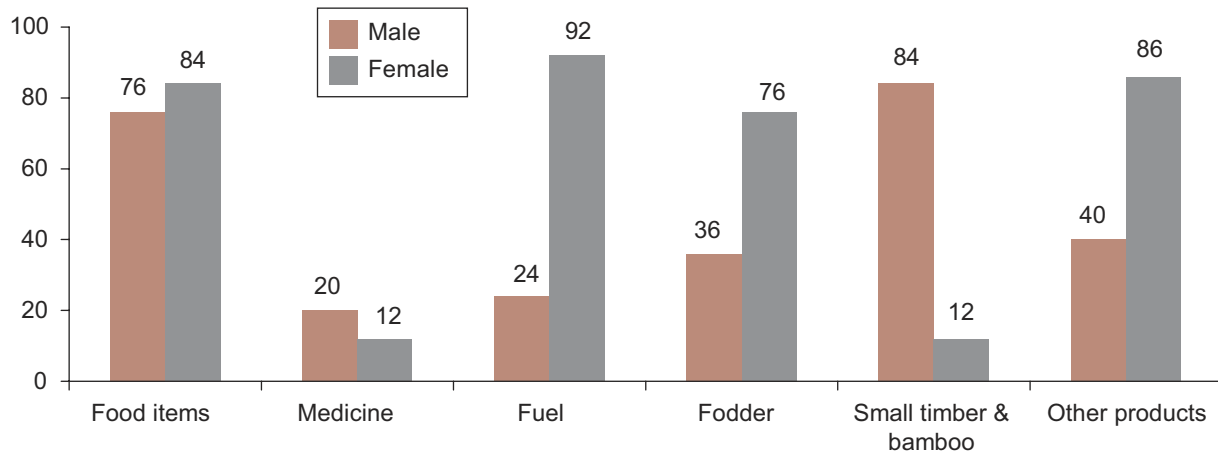
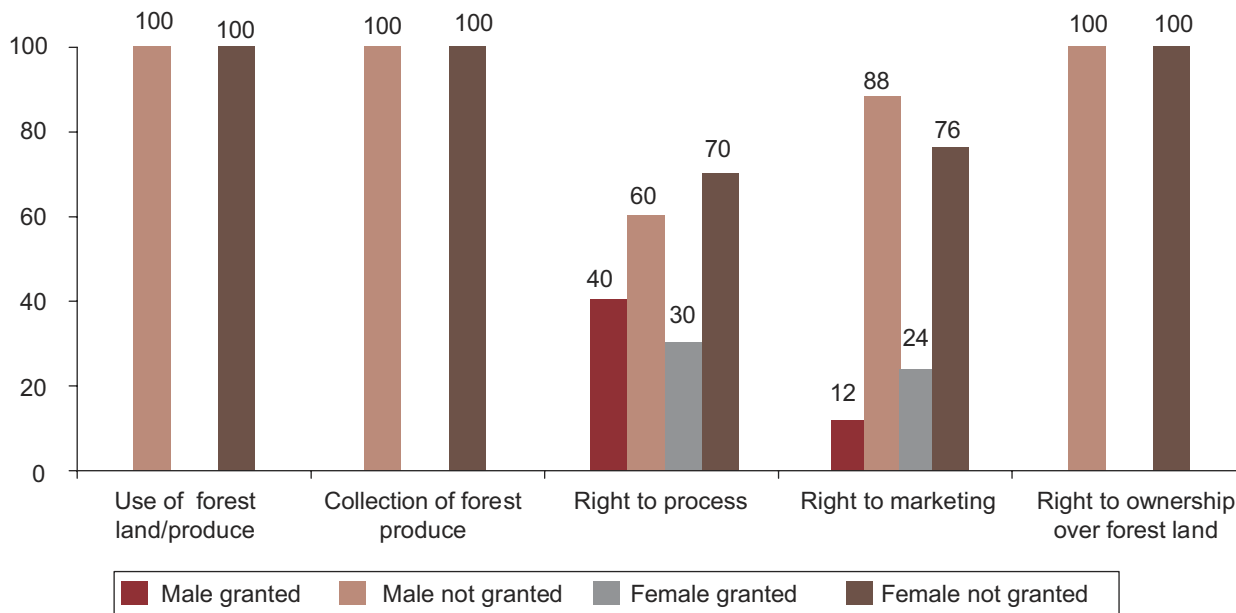


Fig. 2.7

On Right over the Forest Products (per cent)



forest and forest land (Fig. 2.8). But, on issues such as conservation of biomass for soil preservation, plantation in degraded forest land, and protection of forest and forest land, all female respondents reported to have benefited immensely.

In response to the question of who could best

undertake and manage conservation of forest resources, all respondents (male and female) reported to have emphasised the positive role of local people and local institutions (JFM/CFM/GP) and not that of the government and NGOs. The performance of the latter on the conservation issue is reported to have been dismal (Fig. 2.9).

Fig. 2.8

On Utilisation, Management, and Benefits Accruing to the Villagers from the Forest Land (per cent)

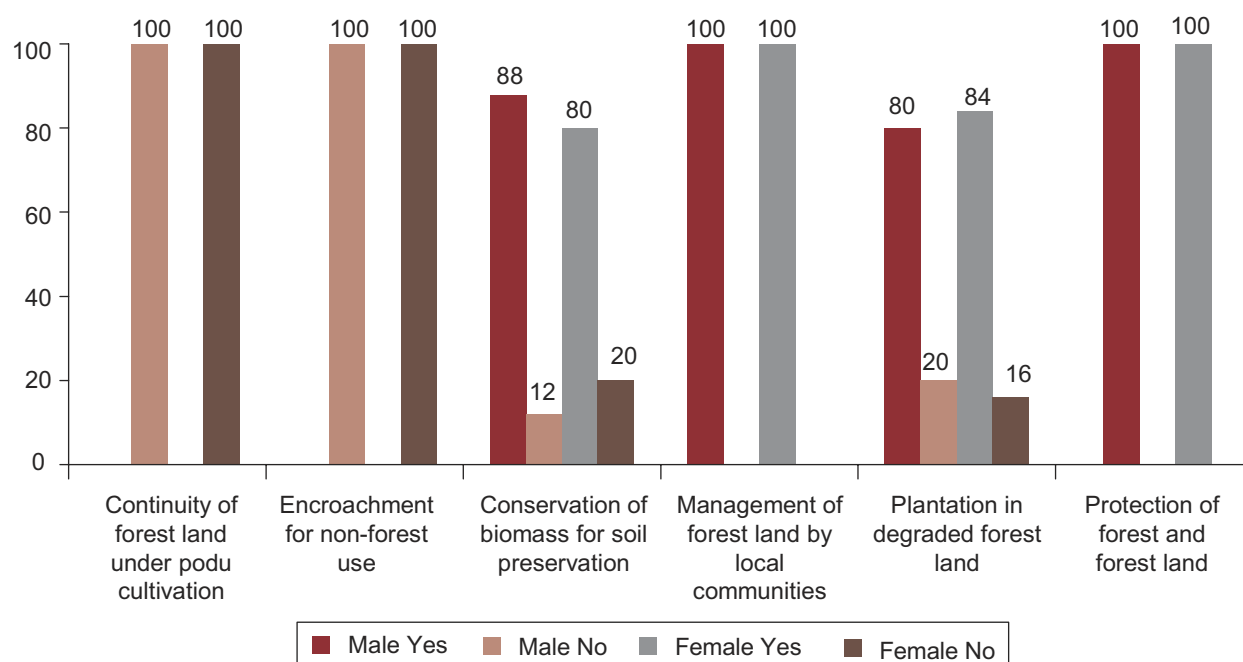


Fig. 2.9

On Institutions/People Who Could Best Manage Conservation of Forest Resources (per cent)

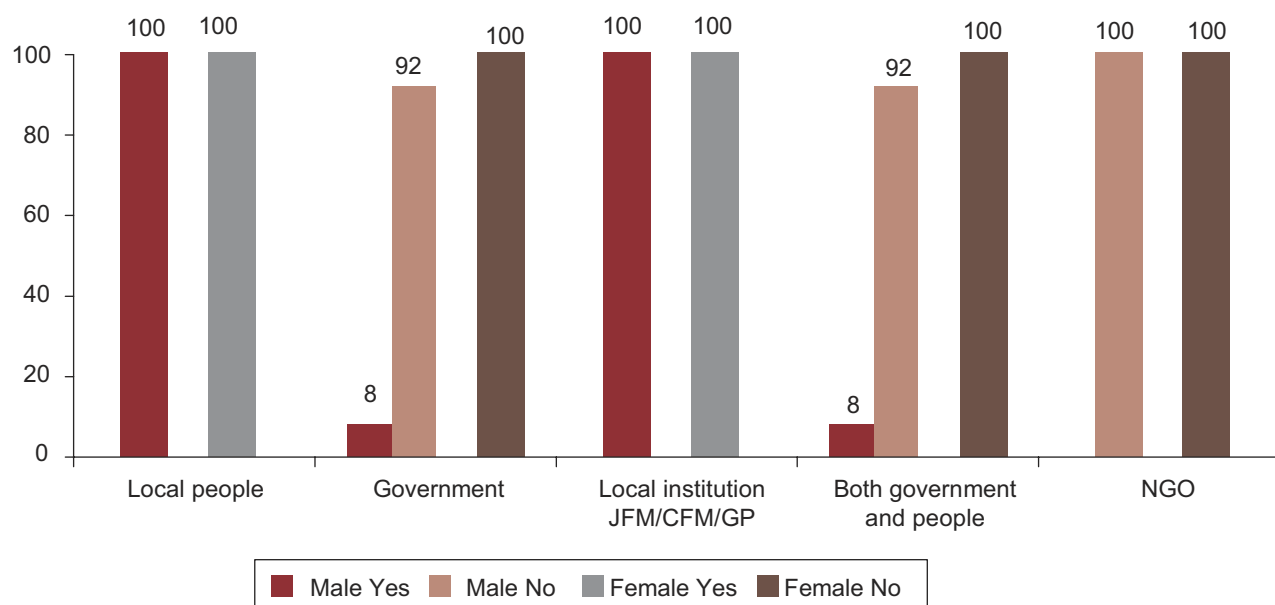
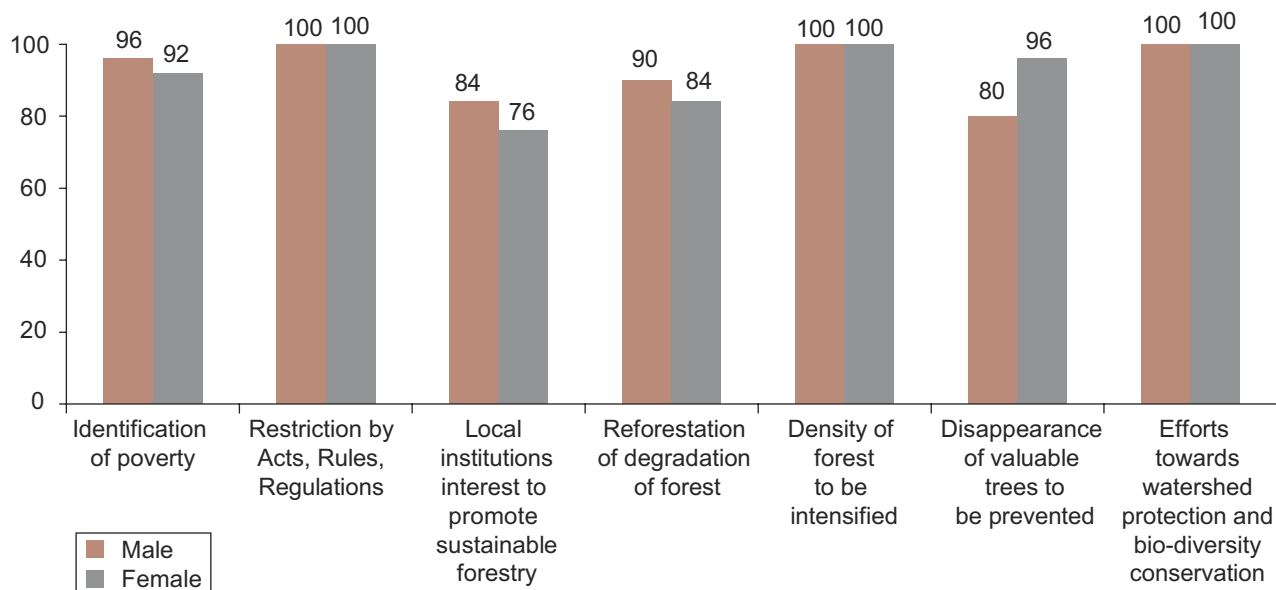


Fig. 2.10

On Local Governance and Management of Forest Resources (per cent)



On the issue of the manner in which the local governance should control and manage forest resources, all male and female respondents identified the following areas for governance by the local people: identification of poverty and preferences of the poor to use forest, restrictions by Acts, Rules and Regulations, reforestation of degraded forest, prevention of disappearance of valuable trees, efforts towards watershed development and bio-diversity conservation, intensification of the growth of dense forest, and local institutions to promote sustainable forestry. (Fig. 2.10).

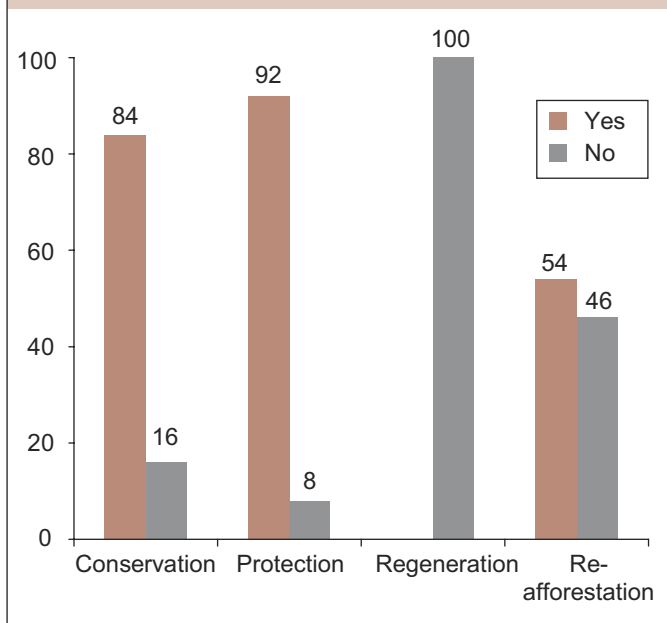
As regards the issue of whether JFM has succeeded in securing desired co-operation/co-ordination from Gram Panchayats (GPs), the majority of both the male and female respondents reported to have positively responded to issues such as conservation and protection (84 per cent and 92 per cent respectively) and only 54 per cent responded to the re-afforestation programme (Fig. 2.11). But, in the regeneration programme, co-operation/co-ordination were reported to have been nil due to the following reasons:

- The objectives and functions of JFM and GP are different (40.0 per cent)

- The GP is overloaded with its core activities (24.0 per cent)
- The GP and JFM are both competitive and complementary to each other (32.0 per cent)

Fig. 2.11

On Co-operation/Co-ordination of JFM with the Gram Panchayat (per cent)



- A common property resource (CPR) like the forest should be exclusively managed by the community (44.0 per cent).

With regard to extra care and protection by the villagers to improve degraded forests it was confirmed that the villagers watch the forest area on rotation basis following three different systems of management, such as: (i) Executive committee with 25 members, (ii) advisory committee with 16 members, and (iii) green brigade with 15 members. Besides, they take up periodical cleaning of the forest and plantation of trees on degraded land. Further, villagers reported to have conserved the forest for ensuring perennial irrigation water to take up agricultural activities. Also, regeneration of forest helps to grow small timber, NTFPs, and other forest products for strengthening their livelihood and food security.

2.7.5 Livelihood Provisions in the Forest Policy/Acts

The rationale of Participatory Forest Management emanates from the objectives of NFP 1988, in which

the critical importance of people's participation for ensuring environmental stability and bio-diversity conservation was realised. In this context, the treatment of local men and women as having the first charge on forest produce with due regard to their customary and legal rights as well as improving their livelihood based on NTFPs assume significance. The forest policy mandate also has been implemented in the context of the 73rd Constitutional Amendment in 1992 by devolving several functions to Gram Panchayats (GPs). The Panchayats Extension to Scheduled Areas Act 1996 also envisages further devolution of powers, functions, and responsibilities to the disadvantaged groups of tribal population. The Act empowers 'Gram Sabhas' and 'GPs' in the Scheduled Areas to protect and preserve the traditions, customs, cultural identity, community resources, and customary modes of the tribals.

The Orissa State Panchayat Act 1997 has been suitably amended for ensuring that Panchayats at the appropriate level and 'Gram Sabha' are entrusted with the ownership of NTFPs. The Act states: 'Notwithstanding any thing contained in any other

Responses on Impact of JFM

Sl.		Yes (%)	No (%)
a.	Whether soil and water conservation benefits have accrued to villages?	88	12
b.	Whether soil erosion on degraded land has been dispensed with?	64	36
c.	Whether richer nutrients in soil are to be found?	64	36
d.	Whether regeneration of forests has succeeded in meeting bio-mass needs?	72	28
e.	Whether changes in past livelihood are noticed?	64	36
f.	Whether changes in living style could reduce biotic pressure?	100	--
g.	Whether sustainable rainfall has been ensured?	88	12
h.	Whether protected area has been reduced due to increase of agro-forestry?	4	96
i.	Whether awareness in conservation has increased?	96	4
j.	Whether the sense of involvement in decision-making and nursing of community forests has increased?	96	4
k.	Whether highly degraded land areas are allotted to landless for regeneration?	--	100
l.	Whether restrictions on felling of trees, even those grown on private lands, are tolerated?	88	12

law in the Scheduled Areas, subject to the control and supervision of the “gram sasan”, the GP shall exercise within its local limits such powers, and perform such functions in such manner and to such an extent as may be prescribed, in respect of the ownership of MFP.’

The Orissa Village Forest Rules 1985 were duly amended in 1989, and clearly envisaged that village woodlots and social forestry plantations were village forests for the use of the villagers. The provisions for livelihoods of villagers are clearly reflected in the Forest Rules. Despite the provision of ‘benefit sharing’ [under the 1993 Resolution for sharing 50 per cent of the produce/income from a ‘major’ or ‘final’ harvest from JFM area between the Forest Department (FD) and VSSs], the sharing provisions are questioned on various counts. Thus, many apprehensions exist with respect to its future benefits. A strategy of uniform management under JFM all over the state, irrespective of varied local needs and priorities, appears not to be justified in the context of the provision of final harvesting management. Therefore, it is natural for the local communities to become apprehensive of the ‘JFM deal’ as a mechanism to regain control over the regenerated forest. Further, lack of devolution for sharing benefits also directly hits their emotions and livelihood, though the villagers hold a host of responsibilities.

2.7.6 Nationalisation and Forest Policies: A Critique

Consequent upon the increased commercial importance of NTFPs, in Orissa, kenduleaf, sal seed, and bamboo were nationalised in Orissa during 1973, 1981, and 1983 respectively, apparently with the intention of helping the poor. The State could generate revenue (royalty) through the exercise of this monopoly right. The state agencies have been working with multiple objectives, namely: (a) to collect revenue; (b) to protect the interest of the tribals as sellers; and (c) to satisfy the conflicting demands of industry and other end users.

On the other hand, nationalisation has in effect given rise to alternative market channels, thereby creating a virtual free market situation where the Orissa Forest Development Corporation (OFDC) and TDCC have found it difficult to compete. A cursory review (Mallik 2000) of forest policies with regard to select nationalised forest products suggests that these have been far from people-friendly. In some cases, the restrictions with regard to accessing, procuring, processing, and selling of the forest produce have only added to the miseries and sufferings of tribals and forest dwellers. Further, non-payment of legitimate price to the primary kenduleaf gatherers in time and wages to the labourers engaged in bush-cutting work in many kenduleaf producing areas of the state created problems for primary gatherers and labourers. A number of studies (Mallik 1994, 1996) suggest that lack of adequate market information and marketing expertise have also forced TDCC, Large Area Multi-purpose Societies (LAMPS), and Agency for Marketing Cooperative Societies (AMCS), to mostly act through private agents. These measures in the name of ‘state monopoly’ have not only resulted in lowering of prices, but have also generated a great deal of market imperfections. Uncertainty regarding sal seed procurement policy often results in primary collectors resorting to distress sale. Box 2.4 captures some of these issues.

Though bamboo was regarded as a weed in the past, in recent years it has emerged as an important raw material for India’s paper industry. However, access to bamboo is rather asymmetric: while poor artisans for whom it is a livelihood resource have restricted access, the paper industry obtains it at a subsidised rate (Saxena 2002b).

After the nationalisation of kenduleaf in 1973, this product provides a large amount of revenue to the Government of Orissa and a great deal of employment opportunities in the agricultural off-season as well as substantial wage income to the primary gatherers.



Buyer's Market: The Case of Tamarind

Tamarind is a high value product in the districts of Gajapati, Rayagada, and Koraput. The collection from the two forest divisions is more than half of the total tamarind production in the state. Apart from the household consumption, huge amount of tamarind is exported every year to various parts of the country and abroad. Besides, tamarind is a very important food item in the dietary habit of the bordering Andhra Pradesh. Since the production of tamarind is much less than the demand, it depends heavily on these two forest divisions.

The Tribal Development Cooperative Corporation (TDCC) operates as the authorised leaseholder in Gajapati district, which is almost coterminous with the Paralakhemundi forest division. In the beginning of the lease year (1997–98), TDCC in Gajapati district stopped procuring on the ground that the agreed rate is not acceptable to its prospective buyers. However, the price was subsequently brought down to Rs 4.50. Besides, it could not get a work order due to non-submission of 50 per cent of the provisional royalty to the Divisional Forest Officer (DFO) till the end of March. The peak season for tamarind collection is February–March–April. When TDCC started procuring, it was already April with virtually no product left with the people. The average procurement from Paralakhemundi forest division varies from 50,000 quintals to 60,000 quintals. But during the crop year 1997–98, TDCC could manage only 3000 quintals. It is important to note that the District Price Fixation Committee sits every year around November–December (immediately after the lease year commences from 30 September) where it agrees to procure at fixed prices. But it took TDCC more than 5 months to settle the deal with its forward buyers resulting in the problems said above. The TDCC in Paralakhemundi forest division till 7 April 1998 had an outstanding royalty of Rs 68 lakhs, which the government subsequently waived.

Besides, reportedly in R. Udayagiri range, due to TDCC's silence, tamarind has been sold at Rs 1.25 per kg whereas the declared price was Rs 4.50.

In Rayagada forest division, along with TDCC, a private agent has also been given a lease from 1995 to 2000 to procure tamarind from three forest ranges, Rayagada, Kashipur, and Narayanpatna. Tamarind price is fixed at Rs 4.50 at the district level. But primary collectors in Talapalapat, Dhaiguda, and Vikrampur village of Narayanpatana range complain that they hardly get the declared price of Rs 4.50. Realising the heavy dependence on tamarind with regard to income generation, especially in a bumper crop year like 1996–97, the sub-agents have forced the tribals to sell at throwaway price. According to them, the price never touched Rs 4.00 and rates varied between Rs 2.00 to Rs 4.00 in a day. Rates are miserably low in the evenings. Even within the Narayanpatana block, rates vary between procurement centres.

The usual time for tribals to collect tamarind is from 7 a.m to 4–5 p.m and during a bumper crop an adult collects around 25–45 kg. The collection continues till sunset and then the tribals start their journey towards the agent at Narayanpatana. By the time they reach the agent, it's almost evening. Expecting huge amount at this time, the clever agents bring down the price knowing very well that the tribals wouldn't go back with their product if the price is not agreeable to them. For the tribals this is tricky situation. For them not agreeing to the dictates of the agent means bringing back the whole product and losing the next day's collection. A cost–benefit analysis says that selling off at a lower price is profitable than losing the next day's collection. Since the tribals depend heavily on tamarind for hard cash, they do not have a choice.

Source: R.M. Mallik, T.P. Singh, and V. Varalaxmi (1998), 'Study of Domestic and Commercial Use including Marketing of NTFPs', Research Report submitted to SCC SCANDIACONSULT NATURA, and carried out by the Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.



2.7.7 Policy Issues and Options: Scope for Improvement in Food Security

In recent years, issues relating to recognition, protection, and promotion of the provisions of sustainable livelihoods and food security to the forest-dependent poor have assumed a central position in the development discourse. In this connection, the role of JFM in the protection of assigned forests through access and control, management of assigned forests, and marketing of surplus forest produce from the assigned forests assumes significance for ensuring safety net to livelihood and food security. However, JFM in Orissa, is still in early stages. In the socio-economic context, apart from production of NTFPs, marketing is one of the means, in combination with processing and resource management, which could cater to the needs of the forest dwellers substantially. This trend is expected to accelerate further, once the forest produces from JFM areas start flowing.

2.7.8 Action Points for the Immediate Future

Effective forest management to harness NTFPs in the JFM areas of Orissa can play an important role in improving the socio-economic conditions of the forest dependent communities and tribals in particular. Changes in the provisions of the Forest Acts, and rules that unreasonably limit the scope of procurement, marketing, primary processing, and value addition in the JFM areas would be needed. The state policy on NTFPs could focus on sustainable resource management and improvement of livelihoods of the forest dwelling communities both quantitatively as well as qualitatively, so that in the long run, these communities would be empowered to carry out activities to procure, process, and market the available NTFPs and could thus sustain their livelihood and food security.

Review of Policies

The government should undertake an internal review of the JFM activities relating to collection, processing, marketing, revenue and royalty generated from the trade, and institutional arrangements for management of NTFPs. The issue of securing a claim by the local people on the forest produces needs to be also

adequately addressed in the review. The tribals' indigenous knowledge relating to processing and value addition must be recognised and promoted.

The government needs to develop a database on NTFPs and other forest resources, with periodical revisions. This would facilitate a clear picture of NTFPs in forest management.

The government has already granted rights to the tribals of Kashipur in the Rayagada district in 1993 to cultivate lands up to 30° slope of the nearby hills. Similar rights may also be extended to tribals in other areas in order to strengthen their food and livelihood security.

Marketing and Processing of NTFPs

A market network information system should be established and monitored regularly. A Market Promotion Board (MPB) could provide information to the stakeholders and establish linkages with different trading houses to market the produces of the area. Setting up of such Boards at the district level would be very useful.

Prospects for Value Addition to NTFPs

The scope for value addition to NTFPs in Orissa is ample. This has significance not only for greater income generation for primary gatherers but also for the long-term conservation of scarce forest resources. Locally managed forest-based enterprises may contribute to sustainable resource use and management.

Figure 2.12 suggests a structure for a community enterprise, in which the community consisting of primary collectors is the basic unit of management. The processing unit may be located, preferably, at the household level or at the village level.

Interventions for the development of NTFPs are necessary and relate to collection, pre-processing, marketing of primary commodities, processing, and marketing of processed products. Products like wild fruits need to be graded before primary processing, and hence, pooling of the products



is essential. Where the processing is complicated or costly, pooling at the primary processing stage is necessary. For example, products like honey could be processed at the village level in view of their capital costs of the machinery involved.

The task of making leaf-plates, baskets and similar other activities could be taken up at the household

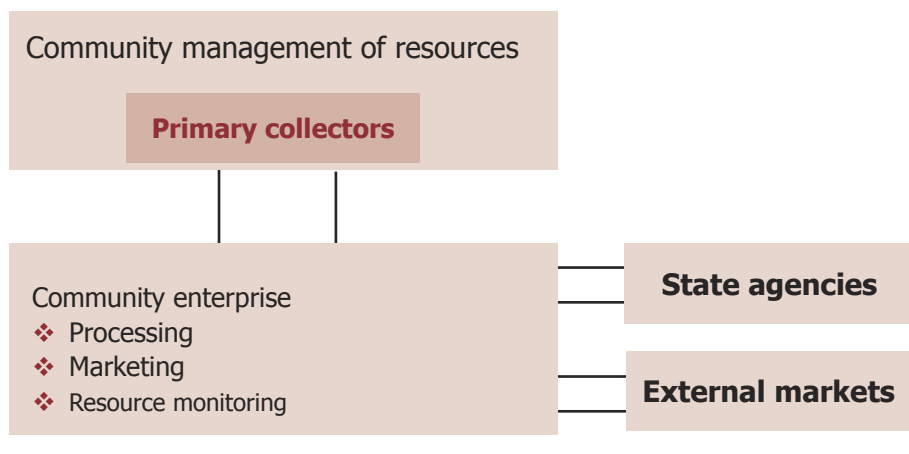
level. The pooling of such products at the stage of marketing would be somewhat challenging. The processing unit can move the products forward to marketing bodies. Close collaboration with the State Agencies in all the functions would enable this to be done in a better manner. However, the product could move to the external markets directly or through the State Agencies depending on the nature of the end product. The unit should have specific tasks for resource management to ensure sustainable use of the forests, processing-cum-marketing, and community organisation for sustainability of involvement of the resource user groups and other stakeholders, and should work in close collaboration with the State Agencies in all types of activities.

The major steps for taking up value addition include: (i) community organisation; (ii) selection of NTFPs for processing and marketing; (iii) procurement equipment and provision of required services (water, energy, chemicals, and other inputs); (iv) capacity building training programmes in processing methods and quality control; (v) technical assistance from experts/institutional agencies; (vi) packing and storage; and (vii) marketing outlets.

The possible activities at the local level include simple processing like broomstick making, cane-making, leaf-plate making, basket-making and slightly complex processing of gum, lac, and other items.

Fig. 2.12

Community-Based Enterprise Structure



Provision of adequate investible funds and better marketing facilities with adequate dissemination of information on support prices of NTFPs is needed for the development of local enterprises based on limited processing and value addition. Grant of access to forests, including ownership rights over NTFPs in some acceptable form, capacity building and skill development/upgradation programmes for primary gatherers, and involvement of women's groups in processing activities is also needed. Permission to local level forest user groups to set up processing units on co-operative bodies under the aegis of JFM, and to primary gatherers to sell a major portion of their finished products to the Orissa Rural Development and Marketing Society (ORMAS) is also needed for the development of local enterprises and value addition.

Leasing of NTFPs

As there is no monopoly lease on NTFPs after the MFP Policy Resolution of 2000, leases could be given to a number of buyers including co-operatives, non-profit making societies, joint sector companies, Village Forest Committees (VFCs), VSSs and their federations. Price lists need to be widely displayed.

Tribals' Rights to Forest Produce

Government ownership over forests and forest products has alienated tribal communities from forests. Bestowing the rights to collection, marketing,

and processing of NTFPs on these users would strengthen their household economy and livelihood. The formation of local level primary collectors' institutions could also widen the scope of forest dwelling activities of the primary collectors. Skill development activities through training could also ensure the use of sustainable methods of extraction of NTFPs, primary processing, and value addition, besides increasing awareness on resource conservation and biodiversity.

Indigenous Knowledge

The indigenous skills, knowledge, experiences, and wisdom gained over the years by the forest dwellers are, however, not fully utilised. An interface between traditional knowledge and modern techniques for NTFP production, marketing, and processing with some amount of value addition is needed. This would enhance the socio-economic capabilities of the forest-dependent poor to secure food security on a sustainable basis.

Sensitising the Role of VFCs and JFM

Better management of incentive structure could not only improve the performance of the JFM programme, but also promote the goals of livelihood creation and

sustainable management of forest resources. The twin challenges of maximising gatherers' income from NTFPs and ensuring sustainable harvesting could be met by sensitising the role of VFCs/VSSs in NTFP collection and marketing. NTFP collection activity could be a powerful tool for transforming VFCs into robust, autonomous people's organisations by imparting to them a strong economic drive.

The overall strategies of the VFCs/VSSs and Forest Department should be directed to promote the economy of NTFP that remains unexploited due to lack of market arrangements, to provide incentives to prevent unsustainable extraction levels, and to enable primary gatherers to secure best deals for disposal of NTFPs. More importantly, appropriate harvesting schedules need to be developed to promote biodiversity conservation and a sustainable source of livelihood.

However, JFM seems to have been confronted with several problems. The legal framework for JFM remains weak and contentious. The existing rights and privileges of the people in most degraded forests do not match the corresponding responsibilities, and often more than one village has rights on the same

Box 2.5

Conflicts Over Forest Resources

I. Conflicts within the Forest Department:

- Lack of proper training and orientation
- Problems in institutionalising Joint Forest Management
- Linkage of Joint Forest Management to externally aided projects
- Unsuitable organisational structure.

II. Conflicts within local community institutions:

- Inadequate representation of all sub-groups and interests
- Inequitable sharing of costs and benefits among the sub-groups.

III. Stakeholder conflicts at the local level:

- Overlapping traditional and legal use rights
- Intra-village and inter-village conflicts in sharing valuable products due to non-demarcation of forest boundaries.
- Poorly defined powers of the Forest Protection Committees (FPCs), these not being statutory bodies.
- Communication gap among different stakeholders
- Intra-community conflicts over distribution of benefits due to heterogeneous caste and class groups.

Source: Government of India (2002), Orissa Development Report, Planning Commission, New Delhi, prepared by Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.



forest. New settlers in a village who are deprived of such traditional rights resort to illegal practices. Further, people staying far away from the forest are keen on enjoying the traditional rights, but not in participating in management. Intra-village conflicts are a common occurrence, as forest boundaries are not formally demarcated initially at the degraded stage. Thus, conflicts begin to emerge once valuable products are regenerated and the green forest cover comes up.

The status of VFCs versus village Panchayats is also tenuous, since the links between Panchayats and JFM groups are rather weak.

In conclusion, the government should consider the forestry sector to be productive enough to support livelihood of the bulk of the rural population—in particular, the tribal people. Adequate attention is needed in terms of greater investment in the reforestation programme, social forestry, village/community forestry programme, and fast growing as well as fruit bearing plantation programmes to sustain livelihood security of forest-dependent communities and rural poor. Above all, community participation in forest management should be given priority in all policy strategies.

The Roy Burman Committee (Government of India 1982) raised the vital issue of forest management through integration of tribals and forest economies without resorting to confrontation between tribals and foresters, but through co-operation and partnership. People should be given their legitimate dues. The National Forest Policy 1988, as well as the recent State Government Policy, envisage powers to the people in the management and control of forest produce. The JFM, recently introduced in the state, also makes specific provisions not only about the management of village forests, but also with regard to the sharing of the benefits. It is in this light that local people's institutions, such as the VSSs or the Gram Sabhas, should be vested with management and control over forest resources. This will also reduce

their exploitation by forest officials, middlemen, traders, and other vested interests.

2.8 Potential, Constraints, and Strategies for Livelihood Promotion

To ensure sustainable livelihood, two broad strategies need to be focused on. These relate to generating adequate alternative occupations and reducing the vulnerabilities of the poor people. As poor people have meagre assets and scarce job opportunities around them, vulnerability to external and largely uncontrollable events like illness, violence, economic shocks, bad weather, and natural disasters reinforce their material poverty and weaken their bargaining positions. Hence, enhancing security by reducing the risk of such events as disease, economic crises, and natural disasters is a key factor in reducing poverty (World Bank 2001). This strategy will eliminate the fear of uncertainty and improve the dynamism of growth-led livelihood promotion process. Growth-led livelihood promotion process involves generation of opportunities through building of human, land, and infrastructure assets of the poor people in a holistic manner. In this context, it is imperative to analyse the sectoral contributions, potential, and threats that have significant implications for human survival.

2.8.1 Agriculture and Allied Activities

Agriculture is an important source of livelihood, mainly through generation of employment in rural areas. It is a direct source of employment and income for rural people in all developing countries (Bernstein, Crow and Johnson 1992). The farming sector absorbs labour, both as owner-cultivator and daily labourer. Those who work as owner-cultivator get the direct and indirect benefits of agriculture as a reliable source of livelihood. Various means of livelihoods other than farming own lands are shown in Table 2.16.

There should be some concrete measures to raise the productivity and bring adequate diversification into agricultural practices. Important dimensions of diversification include: creating additional irrigation

Table 2.16
**Means of Rural Livelihoods Other than
 Farming Own Land**

Sl. No.	Type of activity	Wage employment by	Self employment in
1	Agriculture	(Richer) Farmers	Share cropping or other tenant farming
2	Agriculturally linked	Input suppliers, contractors, crop merchants, transporters	Artisan production (e.g. tools, equipments), small-scale processing
3	Non-agricultural	Industry, trade and other services	Handicraft production

Source: Henry Bernstein, Ben Crow and Hazel Johnson (eds) (1992), *Rural Livelihoods—Crises and Responses*, Oxford University Press, Oxford.

potential, harnessing the groundwater potential as a conjunctive source to surface water irrigation, reducing the risk of poor management of water resources through users' participation, application of scientifically proven modern technologies, raising productivity through inter-cropping, and consolidation of landholdings. As 70 per cent of the gross cropped area is rainfed and exposed to vagaries of the monsoon, the allocation to the irrigation sector needs to be massively increased. Alternative sources of irrigation are rainwater harvesting, watershed development in dryland areas, proper management of existing irrigation infrastructure through people's participation by forming WUAs (Water Users' Associations), or Pani Panchayats.

The other important aspect of agricultural development is diversification of cropping pattern. The state cannot depend solely on rice production, and it is imperative that steps be taken for cultivation of cash crops in which the state has a comparative advantage. As most of the cultivable areas in the state are rainfed, in upland areas cultivation of drought resistant crops and varieties like ragi, greengram, blackgram, and groundnut are to be encouraged. This will reduce the distress of farmers by providing additional sources of income and employment.

As a strategic move, watershed development should be given priority in the highland areas of Kalahandi, Balangir, and Koraput, (KBK) and other districts of the state. Instead of paddy cultivation, steps for development of horticulture should be taken as a complementary measure (Orissa is already specialising in the production of vegetables). In the low rainfed areas of Kalahandi, Koraput, Balangir, Nabarangpur, and Rayagada, cotton cultivation has been encouraged in previous years and should be continued. With a view to increasing investment in agriculture, particularly for

the purchase of capital equipment such as tractors, tools and implements, cheap and collateral free credit facilities should be provided through Self-help Group (SHG)–Bank linkage programme of the National Bank for Agriculture and Rural Development (NABARD).¹ The measures are also needed to develop agro-based industries and promote value added products.

Besides agriculture, allied sectors like fisheries and animal resources can also provide additional income and employment to the rural people in Orissa. Production of fish (both freshwater and marine) and livestock products are two important sources of supplementary income for rural households. The total quantity of fish produced in different years in Orissa is given in Table 2.17.

The contribution of the fisheries sector to GSDP has marginally increased from 2.2 per cent in 1993–94 to 2.4 per cent in 2000–01. As regards marine fish resource, the maximum sustainable yield has been estimated by the Fishery Survey of India to be 1.61 lakh MT. From the data on marine fish production presented in Table 2.17, one can see that the marine fishery resource potential is being nearly fully exploited. On the other hand, there exists enough

¹ The National Bank for Agriculture and Rural Development (NABARD) has been paying special attention to the backward areas of KBK region in Orissa through the SHG–Bank linkage programme.

Table 2.17
Production of Fish in Orissa

(In thousand MT)

Year	Inland fish production			Marine fish	Total
	Freshwater	Brackish water	Total		
1996–97	127.29	16.20	143.50	133.46	276.95
1997–98	135.64	16.78	152.42	156.08	308.50
1998–99	145.00	14.90	159.90	124.33	284.23
1999–2000	124.86	10.44	135.30	125.94	261.24
2000–01	125.11	13.44	138.55	121.09	259.64
2001–02 (P)	147.40	20.66	168.06	113.89	281.95

Note: P: Provisional

Source: Government of Orissa (2003), *Economic Survey, 2002–03*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

scope for increasing production from the inland fishery sector (as the state has a freshwater area of 7.06 lakh hectares) by adopting scientific fish farming through tank fishery, reservoir fishery, and brackish water fishery. The government has taken several policy initiatives in the recent past for better exploitation of inland fishery resource potential. A Reservoir Fisheries Policy has been put in place, adopting the reservoir fisheries development programme through the Revised Long Term Action Plan (RLTAP) in the KBK region. Efforts are underway to enhance the quality of fish seed production in the private and government sectors. In fact, Orissa has good prospects for freshwater and brackish water aquaculture in general, and prawn culture, in particular.

Animal husbandry is another most important income generating activity for rural households. Production and consumption of milk, meat, and eggs provide alternative sources of income and employment. People rear livestock animals like cattle, buffaloes, goats, sheep, and

pigs for domestic consumption. The commercial use of livestock resources also gives supplementary income, reducing the excessive dependence on agricultural output for sustenance. The year-wise production of milk, meat, and eggs in Orissa is given in Table 2.18.

Table 2.18 shows that the production of milk, meat, and eggs has been increasing at a steady rate. This indicates the healthy growth of the allied sectors, which complement the agriculture sector in providing supplementary employment and income to large numbers of people. Efforts should be made through

Table 2.18
Year-wise Production of Milk, Meat, and Eggs in Orissa

Year	Production of milk (in thousand MTs)	Production of meat (in thousand MTs)	Production of eggs (in millions)
1996–97	687.65	32.05	639.31
1997–98	671.82	37.12	729.99
1998–99	732.74	38.12	762.79
1999–2000	847.16	36.67	648.31
2000–01	875.13	38.38	730.10
2001–02	928.77	42.64	858.02

Source: Government of Orissa, *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, various years.

OMFED (Orissa State Cooperative Milk Producers Federation) and OPOLFED (Orissa State Poultry Producers' Cooperative Marketing Federation) to popularise the production and consumption of these animal products.

2.8.2 Small-scale Industries

The small-scale industries (SSI) and cottage industries provide employment opportunities to a sizeable segment of the state's population. As the agricultural sector is saturated, people engage themselves in small-scale entrepreneurial ventures. It has also been a promising sector for self-employment of unemployed (educated) youth. In Orissa, barring some large and

medium industries, it is the small-scale and cottage industries which mostly constitute the industrial sector. Table 2.19 details the category-wise number of SSI units set up by the end of 2000–01.

It is interesting to note that sectors like food processing, repairing and servicing units dominate the SSI sector. Per unit investment and per unit employment in these sectors are lower in comparison to other sectors. The employment potential is high in glass and ceramics sector, followed by engineering and metal-based industries, chemical and allied based industries, and so on. Among various categories of industries, almost all sectors are found to have engaged on an

Table 2.19
Category-wise Number of SSI Units with Investment and Employment Set Up by End of 2000–01

Sl. No.	Category	No. of units	Investment (in Rs Lakh)	Per unit investment (in Rs Lakh)	Employment (in nos.)	Per unit employment (in nos.)	Capital-labour ratio (per worker investment)
1	Food and allied based	15,551	41,322.58	2.657	79,877	5.14	0.517
2	Chemical and allied based	2299	10,398.33	4.523	17,830	7.75	0.583
3	Electrical and electronics based	918	3599.26	3.920	6015	6.55	0.598
4	Engineering and metal based	8000	27,475.54	3.434	63,658	7.96	0.432
5	Forest and wood based	4989	3180.19	0.637	31,828	6.38	0.099
6	Glass and ceramics	5933	20,046.82	3.38	104,458	17.60	0.191
7	Livestock and leather	366	521.74	1.425	2141	5.85	0.244
8	Paper and paper product	2072	5063.20	2.44	11,873	5.73	0.426
9	Rubber and plastic product	1417	8520.25	6.01	8199	5.79	1.039
10	Textiles	6403	5979.37	0.93	38,443	6.00	0.155
11	Miscellaneous manufacturing	4878	12,763.46	2.62	25,109	5.15	0.508
12	Repairing and servicing	13,380	15,879.06	1.19	46,167	3.45	0.344

Source: Government of Orissa (2001), *The Industrial Compendium, 1999–2001*, Directorate of Industries, Cuttack.

average 5 persons per unit except glass and ceramics, which employs 17.60 persons per unit. Though the employment pattern is the same, the per unit investment in different sector SSIs has not followed the same trend. It is also observed that investment per worker in forest and wood based, textiles, glass and ceramics, and livestock and leather industries is lower in comparison to other sectors. However, these sectors have been providing employment to a large section of the workforce. Besides small-scale industries, there were 22,392 cottage units in Orissa in 2000–01, with total investment of Rs 4064.68 lakh and employing 37,571 persons. In aggregate, total employment generated in SSIs and cottage units by the end of 2000–01 was 473,169.

The present level of investment and employment in SSIs and cottage units are not adequate in view of the emerging unemployment situation in the countryside. Adding to the distress of farmers, occupations in non-farm sector are not diversified, causing unemployment and underemployment in rural areas. Hence, in a bid to generate adequate and productive employment opportunities in rural and urban areas, promotion of labour-intensive SSIs and cottage units are to be given priority. The necessary technological and logistics support should be provided to the micro entrepreneurs to withstand the competition from the external sector. The industrial sector, as a source of livelihood, has not contributed significantly to the economy of Orissa. Steps should be taken to develop entrepreneurship among the unemployed youth. The New Industrial Policy, 2001 envisages some incentives for the SSI sector, such as marketing support through government procurement, cluster approach for SSI development, labour reforms, and improving credit flow through credit guarantee fund scheme. These are expected to give stimulus to the industrial sector.

2.8.3 Informal Sector

As a result of saturation of the agricultural sector and decline in the organised sector employment, the informal sector of the economy has witnessed a smooth growth after the policies of liberalisation were

started. The growth of the informal sector in urban areas is high in comparison to rural areas. In Orissa, the share of informal sector in total non-agricultural employment was 71.05 per cent in 1990 (Mitra 2001). As per the empirical studies conducted in major cities of different states, there is an increase in employment generation in the informal sector. It should be noted that self-employment in own account enterprises and establishments, was 45.66 per cent in Orissa (Mitra 2001). Among the activities, employment in own account enterprises is high in manufacturing (40.96 per cent) followed by retail trade (34.07 per cent) and restaurants (5.37 per cent).

A sizeable segment of the workforce is engaged in small and micro enterprises as workers. The extent of dependence on the informal sector for livelihood is high in Orissa. According to Mitra (2001), Orissa, being a less industrialised state with very low level of urbanisation, has the largest share in the informal sector. In this context, it is imperative to examine the employment potential, threats, and vulnerabilities associated with the workforce engaged in the informal sector. It is also observed that employment in the informal sector is associated with low wage, greater number of working hours, unhygienic working conditions, and ill health. Some remedial measures are needed to improve working condition in this sector.

As the incidence of poverty is high in rural areas, to alleviate rural poverty and unemployment, the growth of rural non-farm sector through diversion of workforce from agriculture is desirable. This is possible by way of effective measures like land reforms and spread of primary and secondary education (Samal 1998c). In a similar fashion, development of the informal sector by integrating it into the mainstream economy, and making this sector demand-induced, will generate adequate employment opportunities, ensuring sustainable livelihood to significant numbers. At the same time, further possibilities of a healthy growth of urbanisation, industrialisation, and employment in the informal sector are to be explored.

2.9 Approaches to Livelihood Promotion

It is observed that there are forward and backward linkages in certain sectors of the economy, and that these need fresh stimulus for growth. The potential of non-farm and informal sectors for employment generation are key in this regard. At the same time, there are potential deficiencies that make it difficult to maintain the current rates of growth in different sectors as a result of the structural adjustment programme. Keeping in view the strengths and weaknesses of different sectors and the existing approaches to poverty alleviation and employment generation, the following policy changes are recommended for ensuring sustainable livelihood to the people.

2.9.1 Livelihood Diversification at Micro Level

Livelihood diversification at the household level has tremendous spillover effect on the macroeconomic structure of the state. In the absence of any viable alternative source of livelihood, people in adverse situations engage themselves in a diverse set of activities for survival. People are adopting distinct livelihood strategies depending on their access to land and other resource endowments (Ellis 1998). The rural-urban growth linkage should be exploited to diversify livelihood strategies in the rural areas. As people have differential access to land and other resources, the approaches to livelihood diversification should take into account the locational advantages and disadvantages. The core policies that are expected to act in this direction are better targeting, risk reduction, micro-credit, infrastructure, and education. Diversification within agriculture to take advantage of new markets is also a desirable policy option.

2.9.2 Common Property Resources Management

Common Property Resources like forests, grazing fields, water resources, and common lands in a community offer collective access to consumption

and opportunities for maintenance of these resources. The sustainable exploitation of these resources may generate adequate livelihood opportunities for the community. The present trend of management of these common pool resources is at an infant stage. Experiments in dryland areas, especially through Joint Forest Management programme, have revealed a positive outcome. As the culture of self-help through SHGs and village solidarity groups is gaining wider acceptance, the management of natural resources of a locality, maintenance of water harvesting structures, collection and use of forest products through group-based approaches should be given emphasis.

2.9.3 Micro-credit through Self-Help Groups

As non-farm sector employment is crucial for sustainable livelihood, support to this sector in terms of inputs and technology should be given utmost importance. Micro-credit has helped in augmenting income generating opportunities in both rural and urban areas (Khandker, Samad and Khan 1998). As per NABARD (2001), about 71,300 households have been linked with the local commercial banks through 4,192 SHGs under the SHG-Bank linkage programme operating in the KBK region since 1992. With continued emphasis on this region, NABARD is planning to link more SHGs with the commercial banks in order to uplift the poor in a sustained manner. Through micro-credit, non-farm activities like dairy farms, poultry units, food processing units, and small and micro enterprises are providing adequate additional income and employment to the marginalised sections of the society. Hence, micro-credit through SHGs should be provided on a priority basis.

The above policy changes are expected to encourage individual entrepreneurship, collective sharing of responsibilities, and diversification of rural occupations, thereby ensuring, to some extent, sustainable livelihoods for the people.



CHAPTER 3 **Food Security,
Nutritional Status, and
Nutritional Support Programmes**





Food Security, Nutritional Status, and Nutritional Support Programmes

The elimination of hunger and food insecurity has been the focus of global and national debates, especially since the 1990s. At the World Food Summit held at Rome in 1996, food security was defined as “access by all people at all times to enough quantities of nutritionally adequate and safe food for an active and healthy life”.

It would be useful to arrive at a conceptual clarification with regard to the definitions of food security, food insecurity and hunger. A recent suggested taxonomy (Kennedy 2002) defines these as follows:

- Food Security: ‘Access by all people at all times to enough food for an active healthy life. Food security includes at a minimum: a) the ready availability of nutritionally adequate and safe foods and b) an assured ability to acquire acceptable foods in socially acceptable ways (i.e. without resorting to emergency food supplies, scavenging, stealing or other coping strategies).’
- Food Insecurity: ‘Limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire foods in socially acceptable ways.’
- Hunger: ‘The uneasy or painful sensation caused by lack of food. Hunger, as the recurrent and involuntary lack of access to food, may produce malnutrition over time.’

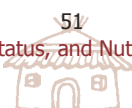
Hunger and food insecurity are distinct and yet related, with the former being a possible but not necessary consequence of the latter. Similarly, malnutrition may be a potential result of food insecurity but is also influenced by other variables such as capacity for food absorption, and poor eating habits.

It is by now widely recognised that food security is

not guaranteed by adequate foodgrain production or even by food availability. It is more fundamentally linked to effective access to food, both physically and economically. Broadly speaking, livelihood security and livelihood access are important determinants of food access. ‘If people have access to livelihood, they would, in general, have access to food and nutrition. Those who are unemployed, employed on causal basis or underemployed, would have limited access to food.’ (M.S. Swaminathan Research Foundation and World Food Programme 2001, p. 5; hereafter referred to as *Food Insecurity Atlas*). It may, however, be added here that even the ability to buy food will not guarantee food security unless there is an effective delivery system—this highlights the importance of physical access.

Thus, food insecurity refers to a situation ‘when all people, at all times, do not have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’ (*Food Insecurity Atlas*, p. 3). Food insecurity thus can start a cycle of malnutrition, deficiency diseases, poor food absorption and heightened food insecurity. The critical factor which can break the cycle is ‘better livelihood access [which] leads to better education, better living standard, better sanitation, better knowledge of nutrition, better absorption and better health’. (*Food Insecurity Atlas*, p. 5). However, from the above sequence of causation, it would be wrong to reduce the question of food security to that of livelihood security. The State too has a critical role to play by way of providing basic public services efficiently and creating an enabling environment for sustainable food security.

In the context of Orissa, a combination of economic,



social, ecological, and institutional factors contributes to food insecurity. A high level of income poverty, a large tribal population living in remote areas with poor connectivity, and periodic recurrence of drought and floods (sometimes simultaneously in different parts of the state) give rise to a situation of chronic and endemic food insecurity. Taking chronic energy deficiency (CED) as a measure of chronic and severe undernutrition and malnutrition, and hence an indicator of food insecurity, it has been estimated that as high as 57 per cent of the state's population suffer from CED. This is in spite of the fact that per capita cereal consumption of the state is very high and the deficit of production relative to consumption of cereals is only a little above 11 per cent. Thus, in spite of a fairly comfortable food availability situation in the state (*Food Insecurity Atlas*, p. 82), food insecurity is chronic.

A comprehensive measure of food access, taking into account several direct and indirect indicators, places Orissa in the category of 'very low' food access (*Food Insecurity Atlas*, Map No. 3.9, p. 67). This is mainly due to poor entitlement on account of high incidence of poverty, inadequate employment opportunities in lean seasons, and poor economic access to public distribution of subsidised food grains.

Taking into account food availability, food access, and food absorption, represented by 19 indicators, Orissa has been put in the category of 'severely food insecure' regions. It has been pointed out that severe food insecurity in Orissa is primarily due to the presence of a vulnerable rural population with poor livelihood access or livelihood susceptible to natural disasters. Lack of safe drinking water, proper health infrastructure, poor rural infrastructure, and low female literacy are also features of severely food insecure states like Orissa. Thus, lack of basic amenities due to poor governance in the social sectors reinforces the severely food insecure status of the state.

3.1 Nutritional Status of Women and Children: Anthropometric Indicators

Since chronic food insecurity prevails in the state, anthropometric measures are particularly well suited to capture the degree of undernutrition and malnutrition. The nutritional status of women and children is a robust indicator of social well being as they are the most vulnerable sections of society from the point of view of nutritional stress. In addition, malnourished children are particularly susceptible to infectious and communicable diseases, which, in turn, can adversely affect food absorption, thereby aggravating the degree of malnutrition. In this connection, it is significant to note that a strong correlation (0.71) has been established between child malnutrition and child mortality (whereas that between child malnutrition and poverty was rather weak at 0.38) (see Chapter 4).

Body mass index (BMI)—weight (in kgs) per unit height (squared, in metres)—is often used in the case of women as an indicator of chronic energy deficiency, with a BMI of less than 18.5 suggesting undernutrition and less than 16.5 suggesting chronic energy deficiency. Based on this, it has been estimated that 48 per cent of women in Orissa suffer from nutritional deficiency [International Institute for Population Sciences (IIPS) and ORC Macro 2001, p. 153; hereafter referred to as *NFHS-2*]. The numbers are much higher in the case of illiterate women (54.60 per cent), Scheduled Tribe women (55.5 per cent), and those women with a low standard of living (55.2 per cent).

The average iron intake in Orissa is close to the recommended daily allowance (*Food Insecurity Atlas*, p. 77) as per the norms set by the Indian Council for Medical Research (ICMR). Despite this, as high as 63 per cent of married women aged 15–49 years in Orissa have some degree of anaemia (*NFHS-2*, p. 157). Based on the weight-for-age (an indicator of both chronic and acute undernutrition) measures, 20.7 per cent of children below 3 years



of age are severely underweight and another 54.4 per cent are moderately underweight. Based on the height-for-age measure, 17.6 per cent of children suffer from chronic undernutrition of the severe type and another 44 per cent of the moderate type (*NFHS-2*, p. 167).

The extent of anaemia among children of age 6–35 months is greater than it is among women: as high as 72.3 per cent of children have some degree of anaemia. Though only 2.9 per cent suffer from severe anaemia, as high as 43.2 per cent have moderate anaemia (the rest 26.2 per cent have mild anaemia). There is a positive relationship between the anaemia status of mothers and prevalence of anaemia among children. It should be noted that anaemia among children is a serious matter, as it can affect cognitive ability, locomotor development, and scholastic achievement as well as lead to increased susceptibility to infectious diseases.

3.1.1 Social Disparities in Consumption Patterns and Nutritional Status

Recent research (Rout 2003) using unit-level data for Orissa from *NFHS-2* has identified certain important social differentials in terms of food consumption reflecting social status. Thus, in the case of both food and non-food items, a relatively larger proportion of urban women consume more as compared to rural women: 62.9 per cent and 26.4 per cent urban women eat pulses/beans and milk/curd daily, respectively, but the figures are only 37.5 per cent and 8.1 per cent for their rural counterparts. The study indicates that people with better height and weight are found in the more educated, better occupational, and high standard of living groups. From this, it can be inferred that height and weight are regulated by nutritional status, which in turn is affected by education and economic status.

Scheduled Caste (SC) and Scheduled Tribe (ST) people suffer from anaemia more than Other Backward Castes (OBC) and others. The percentage of SC people suffering from severe anaemia is very

high, both in urban (2.6 per cent) and rural (2.4 per cent) areas.

3.2 Can Calorie Intake Data Reflect Chronic Undernutrition?

When we move from anthropometric indicators to calorie intake data, we come up against something of a puzzle in Orissa. The average per capita calorie intake and that of the lowest decile turns out to be one of the highest among the major Indian states (NSSO 1997). In fact, only 10.40 per cent of households in rural Orissa consumed less than 1890 kcal (per cu/day), the cut-off used to determine the extent of absolute hunger (NSSO 1997). While this may be taken to mean that Orissa has fared relatively better in respect of ‘calorie poverty’ as compared to ‘income poverty’, certain limitations of the calorie intake approach to measure undernutrition should be noted (Mishra 2003, pp. 9–10). First, the data on calorie intake is typically for a given reference period (of 7 or 30 days). Thus, the short-term variations in food consumptions are not captured by this method of data collection. In addition, variations in the average calorie requirement of a person due to factors like body weight, nature of work performed, and status of health are not taken into account. This makes it difficult to have a single required norm of calorie intake below which an individual may be considered undernourished. Second, the calorie intake approach tends to overestimate average calorie intake as it takes into account the total quantity of food consumed by a household during the reference period rather than the normal level of food consumption. Third, and perhaps most relevant in the present context, a high level of calorie intake does not necessarily ensure satisfactory nutritional status since efficient absorption of food depends on a number of health related factors like living conditions of a household, state of hygiene and sanitation, and access to safe drinking water.

Therefore, anthropometric indicators have a distinct advantage, in terms of validity and reliability, over the calorie intake approach in measuring and monitoring nutritional status.



3.3 Food Insecurity and Coping Mechanisms

Before examining public interventions for providing food and nutritional security, it is important and useful to understand how certain coping strategies are adopted by households during times of acute or chronic food insecurity.

A study conducted in four districts of Orissa (WFP 2002) provides ethnographic insights into ‘coping strategies’ of food insecure households who adapted their food consumption patterns depending upon whether it was a time of plenty or a time of scarcity. The content, intra-household distribution, and frequency of food intake varied significantly between normal years and crisis years. People of all income groups, especially the most vulnerable, reported long-term trends towards eating less preferred foods as a means of adapting to reduced income levels. The food sources in these villages are self-production, purchase, nature (forest), and help from individuals and organisations. For example, in Cherkaput village, during crisis periods the villagers depend on wild tubers, wild leafy vegetables, and inferior quality rice. In Bhodusol, villagers collect mahua flowers and tubers for their consumption. In Khardapada and Gunduri, the villagers get food aid from the government during crisis periods through the Public Distribution System (PDS). Classic consumption responses are as follows:

- *Limiting the frequency and quantity:* The villagers usually reduce the frequency and quantity of meals during crisis periods. There are even instances when they skip a meal altogether.
- *Borrowing either food or money to buy food:* Borrowing either food or money to buy food is a common practice not only during the crisis years, but also in normal periods. People usually depend on moneylenders and traders to tide over the adverse periods. However, borrowing money for food or directly borrowing food generally leads to permanent indebtedness and is an example of how a short-term coping strategy can lead to

a more vulnerable position with regard to long-term livelihood options.

- *Change in consumption pattern:* The consumption pattern of the people with regard to expenditure on food and non-food items also undergoes changes during crisis periods. It was reported that the expenditure on food items out of the total consumption increased during the crisis period as compared to a normal year. As such, a higher proportion of income is spent on food items.
- *Maternal buffering:* The practice of a mother deliberately limiting her own intake in order to ensure that her children get enough to eat, known as maternal buffering, is common across all regions. Sometimes women reduce or skip their meal so that the adult members get sufficient food. This practice is common across all the social and economic groups in the study areas.

3.4 Food and Nutritional Security Programmes

Government interventions to ensure food and nutrition provisioning can be broadly classified into: (a) subsidised distribution of foodgrains, (b) nutrition provisioning through Anganwadis, and (c) Food for Work programmes. In addition, grain banks have also emerged as people’s interventions to cope with food insecurity. Box 3.1 provides an example of such an intervention. Here, we mainly deal with two programmes, namely the PDS and the Integrated Child Development Services (ICDS), which are by far the most important in terms of their objectives and coverage.

3.4.1 Public Distribution System (PDS)

The PDS is an effective instrument for maintaining price stability and for equitable distribution of essential commodities to consumers, particularly to those belonging to the weaker sections (Government of India 2002c). It has played an important role in ensuring food security and reducing poverty. The system operates through a network of fair price shops. The central government is in charge of procurement, storage, and supply of PDS commodities and bears



Food Security through Community Grain Bank: A Success Story from Balangir District

There is a cluster of 20 villages, about 150 km away from Balangir town. Hundreds of families in and around Sundhi Munda village have built a food insurance system that keeps hunger at bay. This food security system has successfully withstood varying degrees of natural calamities and has, in fact, grown and multiplied, demonstrating its social relevance and effectiveness. On the other hand, recurring droughts have brought acute misery and suffering for tens of thousands of people in the district, with at least 25 of them reportedly dying due to starvation.

The emergence of this food security system can be traced to 1990–91, when a social activist Bansi Behera, coordinator of the *Anchalika Jana Sewa Anusthan* in Sundhi Munda village, was looking for a permanent solution to mitigate human suffering from the non-availability of foodgrains, especially at times of distress. His appeal to fellow villagers was to donate surplus paddy and rice after the harvest so as to build a grain reserve of 22 quintals of paddy. In all, 150 families from eight villages, almost all of them marginal farmers, responded to his call. The village grain bank was thus formed. Farmers have since then deposited their 'surplus' produce with the bank after each paddy harvest. They withdraw an equal quantity of paddy at the time of need without having to pay any interest. For others, who are landless or do not have any 'surplus' for the grain bank, borrowing paddy at times of distress is routine. But at the time of harvest, the grains borrowed have to be returned with half a bucket of paddy as interest. For those who cannot repay the foodgrain loan, the village *samaj*

(society) decides whether the loan can be waived or not. For the villagers, the grain bank was an escape from the clutches of moneylenders, who often gave foodgrains to the needy on the condition that they be returned in double the quantity received, and that too within three months.

Sometimes, depending upon the immediate requirement of the participating villages, the beneficiaries are asked to contribute by way of human labour. In village Batharla, a community temple and grain storehouse was constructed by the beneficiaries. Their wages were paid in kind from the interest (surplus grain) that builds up over the years. In Banjuopadhar village, a traditional water-harvesting tank was rejuvenated for which the society distributed 16 quintals of paddy as wages. The grain bank, in other words, is also being utilised for 'food-for-work' programmes depending on the need of the village community.

In five years, the grain bank had grown in size and volume. In 1996, the society received and disbursed 220 quintals of paddy. A year later, in 1997, it got back 253 quintals. In all, the number of people donating to the grain bank had grown by almost ten times, with a thousand families depositing paddy in 1998. The number of beneficiaries too increased over the years, reaching 1066 families, in the 20 participating villages. More than the numbers, what is important here is to understand that these families have perfected a social model that provides freedom from hunger to them.

Source: Devendra Sharma, <http://www.dsharma.org/hunger/wayout.htm>

the cost of these operations. The state government 'lifts' the commodities and distributes them to the retail PDS outlets (fair price shops) across the state at subsidised prices.

The efficacy of PDS in Orissa, in terms of the extent of utilisation and degree of income transfers affected through PDS, is briefly reviewed below. The degree of utilisation of PDS depends on several factors: the

extent of PDS offtake relative to allocation; how well the fair price shops are functioning; the extent to which a state is food deficit; and, above all, the difference between the issue price and open market price, adjusted for quality differences.

Table 3.1 shows that the population-related coverage of fair price shops is better in Orissa than in all-India. Here, it should be pointed out that while appointing



Table 3.1
Density of Fair Price Shops

Year	Persons per fair price shop	
	Orissa	All-India
1985–86	1465	2360
1986–87	1512	2350
1987–88	1419	2319
1988–89	1463	2324
1989–90	1462	2165
1990–91	1458	2272
1991–92	1428	2234
1992–93	1478	2163
1993–94	1375	2118
1994–95	1382	2132
1995–96	1342	2141

Source: Government of India, *Bulletin on Food Statistics*, Ministry of Agriculture, New Delhi, various issues.

PDS retailers, the prescribed norms need to be modified in certain cases. These include cases where following the norm would make PDS inaccessible to some consumers tagged to certain outlets and cases where the villages/hamlets are tagged to outlets more than 2 km away. In fact, available evidence

suggests that *physical* access to PDS in Orissa is quite satisfactory: as per the 'Evaluation Study of Targeted Public Distribution System and Antyodaya Anna Yojana', 61.4 per cent of ration card holders in rural Orissa had a ration shop within their village and another 30.3 per cent within a distance of 2 km.

However, available evidence suggests that the access to and utilisation of PDS by the poor in Orissa is very limited. This is rather surprising in view of the high incidence and intensity of poverty in the state. There are two main reasons for this: frequent increases in the issue price of rice, thus closing the gap between the latter and the open market price; and second, large number of both Type I (inclusion) and Type II (exclusion) errors.¹ Besides, limited purchasing power reduces the demand for PDS commodities. Some limitations of PDS are listed in Box 3.2.

A World Food Programme study (WFP 2002), which analysed food insecurity and vulnerability in Orissa at the community level and included a survey of poor households in four villages, found that the villagers mainly received rice, sugar, and kerosene

Box 3.2

Public Hearing on PDS

The Right to Food Campaign organised two public hearings in October 2002 in two districts—Kalahandi and Balangir—one of which has drawn widespread media attention and judicial intervention for its chronic drought conditions and hunger, often leading to starvation deaths or deaths resulting from hunger-related diseases. The public hearing elicited information from hundreds of tribals concerning the functioning of basic needs programmes in the area.

As regards the PDS, the following complaints were aired:

- Many people are unable to lift the Below Poverty Line (BPL) rice precisely because they do not have any purchasing power, or because of lack

of liquid cash at the right time, since the ration shops open for only a few days each month.

- The BPL rice is sold at Rs 5 per kg which is close to the market price (about Rs 6 per kg) so that people get little benefit from the PDS, taking into account the low quality of PDS rice. In addition, illegal commissions are charged, which further reduce the gap between issue price and market price.
- Some participants complained of fake entries being made in the ration cards.
- In some remote villages, the BPL rice does not reach because transportation allowances are very low.

Source: Right to Food Campaign (2002), <http://www.geocities.com/righttofood/events/orissa.html>.

¹. Type I Error refers to wrong inclusion of some non-target population and Type II Error refers to wrong exclusion of some target population, in a targeted programme.

oil from the PDS. The locals consider the PDS to be an important source for purchasing grains, especially rice, at a subsidised rate. However, some of the common complaints were, difficulty in accessing PDS, travel cost due to distance, poor quality of rice supplied and inadequate supplies. Consequently, the locals have had to go to the village shop or weekly markets. In Khardapada village, it was pointed out that during times of shortage, the supply from PDS decreased because the quota allotted was diverted to the open market.

The extent of income transfers to the poor has been quite low: according to estimates by Radhakrishna et al. (1997, Table 4.6, p. 41), it was the third lowest (after Bihar and Uttar Pradesh) in rural Orissa among all the major states in 1986–87. Thus, income transfers (Rs per capita per month) to poor, non-poor, and all income classes were respectively 0.44, 0.52, and 0.48 in the case of Orissa, and 2.01, 2.47, and 2.30 in the case of All-India.

The allotment and distribution of the essential commodities under PDS to the consumers are not adequate and proper in the state (Government of India 2002c). The National Sample Survey, 42nd Round reports that while at the all-India level, rice purchased from the PDS formed only 16.7 per cent of the total rice purchased by the households, in the case of wheat, it was 12.6 per cent only. In states like Bihar, Uttar Pradesh, and Orissa, where the bulk of the rural poor are concentrated, 98 per cent of the rural population did not make any purchase from the PDS (Shankar 1997).

However, it should be pointed out that utilisation of the PDS in Orissa has improved lately: as per the NSS consumer expenditure data for 1999–2000, 51.38 per cent of the rural households accessed the PDS for purchase of rice as against 32.38 per cent for all-India (Mahendra Dev 2003, p. 27). This was the fifth highest degree of utilisation of the PDS among 17 major states of India.

The state government has, of late, been taking several steps to streamline the PDS so as to improve physical and economic access to it. Under the Orissa Public Distribution System Control Order 2002, instructions have been given to all district collectors to allow the BPL beneficiaries to lift their quota on installment basis as well as to keep the fair price shops open throughout the state during the stipulated period.

An amendment has been made in the Orissa Public Distribution System Control Order 2002 to sell the essential commodities to the ration cardholders strictly as per the retail issue price fixed by the government. Vigilance Committees have been formed, from the retail to the district level, to oversee the functioning of PDS at each stage. Complaints, when received, are enquired into and strict measures are taken against errant dealers and government officials. To avoid fake entries in the ration cards, necessary provision has been made in the Orissa Public Distribution System Control Order 2002.

To provide PDS benefits in the inaccessible areas, mobile vans have been used to make the PDS commodities available in Gram Panchayat headquarters/haats. As transportation costs as well as overall transaction costs are recognised to be much higher than that admissible by the government, a proposal is being considered by the Government of India to give an incentive allowance to the retail traders to ensure viability of the PDS retail business.

It is wrong to expect that the PDS *by itself* would provide adequate food security to the poor. Improvement in the incomes of the poor through a broad-based agricultural growth strategy needs to be put in place in medium to long-term. In addition, a synergy between PDS and employment generation and nutritional support programmes such as ICDS and Mid-day Meal (MDM) schemes must be established.

Moreover, the PDS, does not fare very well in terms of cost effectiveness per rupee of income transferred

due to poor targeting and leakages (Table 3.2). The cost differential has much to do with the built-in self-targeting nature of different schemes.

3.4.2 Targeted Public Distribution System

Under the Targeted Public Distribution system (TPDS) introduced by the Central government in June 1997, the Government of India has identified 32.98 lakh BPL families in the state. Under this, separate ration cards are issued to BPL families different from those issued to Above Poverty Line (APL) families, for whom a higher issue price is charged. Accordingly, foodgrains are allotted every month for distribution to those families at a price fixed by the Government of India. The BPL price of rice, on the basis of central issue price, is fixed at Rs 6.30 per kg. Keeping in view the low purchasing power in some of the tribal areas, the state government has further subsidised the price of foodgrains to provide 16 kg of rice per month at Rs 4.75 per kg. The government has made provisions for the supply of subsidised rice to 48.58 lakh families, which include 5.06 lakh BPL families under Antyodaya Anna Yojana (see below). Thus, all BPL families of the state are entitled to get the benefits under the TPDS.

As part of the TPDS, two major schemes, namely, the Antyodaya Anna Yojana and Annapurna Scheme, of indirect income transfers have been launched

with the purpose of nutritional support both at the household and individual levels.

Antyodaya Anna Yojana (AAY)

This programme was introduced in December 2001 and is targeted at the ultra-poor and destitute households as identified by Gram Panchayats and Gram Sabhas/Palli sabhas. The households so identified are supplied with special ration cards. Under this scheme, the Antyodaya households are provided with 35 kg of rice per household per month at Rs 3 per kg. Apart from broad guidelines provided by the Government of India for execution of the scheme, some specific guidelines are followed in order to focus on priority groups belonging to the BPL category for the purpose of entitlement under this scheme. For example, in the case of Orissa, the following criteria have been laid down to identify households who are likely to be most vulnerable in terms of nutritional stress.²

- (i) Households headed by widows or terminally ill or disabled persons or persons aged 60 years or more with no assured means of subsistence or societal support.
- (ii) Widower or terminally ill persons or disabled or aged 60 years or more or single women or men with no family or societal support or assured means of subsistence.
- (iii) All primitive tribal households.

It may be pointed out that the basis of targeting under this scheme is superior to the income-based identification, which leaves ample room for false inclusion of the non-poor. This is important since the rate of subsidy involved under this scheme is much higher than that under the PDS.

By July 2003, a total of 505,050 households were covered under this programme in rural Orissa. The extent of coverage under the programme in relation to the rural population, rural poor population, and rural 'very poor' population in three regions of Orissa is given in Table 3.3.

Table 3.2

Cost per Re. 1 of Income Transferred by Various Programmes (1988–90)

Schemes	Total cost
Public Distribution System	5.37
Andhra Pradesh Rice Schemes	6.35
Jawahar Rozgar Yojana	4.35
Maharashtra Education Guarantee Scheme	3.10
Integrated Child Development Services	1.80

Source: R. Radhakrishna, K. Subbarao, S. Indrakant and C. Ravi (1997), *India's Public Distribution System: A National and International Perspective*, World Bank Discussion Paper No. 380, The World Bank, Washington, D.C., p. 55.

² Letter from Principal Secretary, Food Supplies and Consumer Welfare Department, Government of Orissa to all Collectors, 24 July 2003.

Table 3.3
**Coverage of Antyodaya Anna
 Yojana Scheme**

(in per cent)

Region/ State	Estimated coverage in relation to		
	Rural population	Rural poor population	Rural 'very poor' population
Orissa	8.1	16.9	37.6
Southern	16.2	18.6	47.6
Northern	6.3	12.6	33.1
Coastal	1.3	20.7	34.6

Note: (i) Rural poor and rural 'very poor' population figures are derived from estimates of rural poverty ratio (for 1999–2000) and the per cent of rural 'very poor' population (for 1993–94) based on NSS data for 1993–94, as applied to the respective size of the rural population.
 (ii) 'Very poor' population refers to those who are below three-fourth of the poverty line.
 (iii) It is assumed that the absolute size of the 'very poor' rural population has not changed much between 1993–94 and 1999–2000.
 (iv) Region-wise size of beneficiary population has been worked out by multiplying the available data on district-wise number of beneficiary households (in 2003) by a factor of five (the assumed average size of a household).

Source: (i) For region-wise poverty ratio, Arjan de Haan and Amaresh Dubey (2003), 'Poverty in Orissa: Divergent Trends? With Some Thoughts on Measurement Issues', mimeo, paper presented at the Workshop on 'Monitoring of Poverty in Orissa', 26–27 February, Bhubaneswar.
 (ii) For region-wise per cent of 'very poor' in rural population, (i) Government of India (1997), *Sarvekshana*, Vol. XXI, No. 2, 73rd Issue, October–December (NSS 50th Round, 1993–94), Ministry of Statistics, Planning and Programme Implementation, Department of Statistics, New Delhi; (ii) Government of India (2001), *Census of India: Orissa*, Directorate of Census Operations.

It can be seen that there is no undesirable regional bias in coverage; if anything, the coverage of the programme in the southern region—the poorest region in the state—is relatively better. The better coverage in the southern region is particularly noteworthy in the case of 'very poor' rural population. The greater coverage of the southern region under the scheme is perhaps called for, since the intensity of poverty in this region is about twice that in the coastal and northern regions (Chapter 2, Table 2.7).

There has been a significant expansion of the scheme during 2003–04, with an additional allocation of Rs 507 crore having been provided by the Government of India. Under the expansion scheme, the number of beneficiary households in Orissa has increased by 50 per cent, i.e. by 2.53 lakhs. With this expansion, the coverage of 'very poor' rural population as shown

in Table 3.3 above is likely to have gone up by at least 50 per cent, i.e., without taking into account the possible decline in the absolute size of 'very poor' rural population between 1999 and 2003 as a result of the operation of AAY. Some aspects of AAY are given in Box 3.3.

Annapura Scheme

The Annapurna Scheme, like the Antyodaya Anna Yojana, is a component of the TPDS. This scheme seeks to provide direct nutritional support to indigent senior citizens by entitling them to 10 kg of free grain per month. As on 25 May 2004, there were altogether 64,800 beneficiaries under this scheme in Orissa. No evaluation study of this scheme is currently available.

3.4.3 Targeted Nutritional Interventions

While the above programmes aim at improving the physical and economic access to staple food and thereby provide indirect nutritional support, direct nutritional support programmes are typically targeted towards certain sections of the population who are vulnerable to nutritional stress and involve in-kind transfers.

Integrated Child Development Services (ICDS)

The ICDS is the most important nutritional support programme of India and this scheme is now focused in regions with high incidence of poverty. Unlike the PDS, ICDS is an in-kind income transfer programme, which integrates supplementary nutrition with primary health care and informal education. The target groups of ICDS include children in the age group 0–6 years, pregnant women, and lactating mothers from the poorer sections of the population in rural areas as well as in some urban slums. The major activities undertaken through ICDS are:

- Supplementary nutrition
- Growth monitoring and promotion
- Health and nutrition education to adult women and adolescent girls
- Immunisation
- Health check-up
- Referral services



Access to Antyodaya Anna Yojana (AAY): Some Salient Aspects

Recently, the ORG Centre for Social Research, New Delhi has done an evaluation study of the Targeted Public Distribution System and AAY for the Ministry of Consumer Affairs, Food and Public Distribution. The study for Orissa is with reference to four districts, namely, Balasore, Kandhamal, Mayurbhanj, and Sambalpur, and for a sample of 600 rural households. The relevant findings of the study are as follows (we confine ourselves to rural Orissa).

- For 61.4 per cent of ration card holders, the ration shop was within the village whereas for another 30.3 per cent, it was at a distance of 1–2 km.
- Among the Below Poverty Line (BPL) ration card holders, only 28.9 per cent were aware of the AAY beneficiary selection process while 71.1 per cent were not.
- Of the BPL ration card holders, 40.0 per cent cited 'issue price too high' and 73.3 per cent cited 'stocks not available at ration shop' as one or both reasons for not lifting grains in the last one year.
- Among AAY ration card holders, as high as 79.0 per cent cited 'items available irregularly at ration shop' as the reason for not lifting foodgrains regularly during the last six months prior to the survey.
- Among AAY ration card holders, 39.0 per cent cited 'scarcity of income' and 64.8 per cent cited 'full quota not available at ration shop' as reasons for not lifting the entire quota.
- Of AAY ration card holders, 50.9 per cent (58.2 per cent of BPL ration card holders) took loans to purchase foodgrains required for the households.
- The quality of grain was acceptable for 54.7 per cent of AAY card holders (62.6 of BPL card holders) and not always acceptable for 44.0 per cent of AAY card holders (34.8 per cent of BPL card holders).

Source: ORG Centre for Social Research (n.d.), 'Evaluation Study of Targeted Public Distribution System (TPDS) and Antyodaya Anna Yojana (AAY), State: Orissa', Draft Report submitted to Ministry of Consumer Affairs, Food and Public Distribution, New Delhi.

- Non-formal pre-school education to 3–6 years old children.

The nutritional entitlements under ICDS are as follows:

- 0–6 years: 300 calories (ready to eat food) plus 8–10 gm protein for 300 days.
- Malnourished children: 600 calories plus 20gm protein for 300 days.
- Adolescent girls: 500 calories plus 20–25 gm protein for 300 days.
- Pregnant and nursing mothers: 500 calories plus 20–25 gm protein for 300 days.

The ICDS is organised through a chain of projects, each of which is located at a community development block covering a population of 100,000 in rural and urban areas and a population of 35,000 in tribal areas. The Anganwadi is the focal point in the delivery of ICDS services at the

village level. The project team of ICDS consists of one Child Development Project Officer (CDPO), 3–5 Supervisors with supporting staff for the project head office, one Anganwadi Worker (AWW), and one Helper for each Anganwadi. All of them are women, except the CDPO who may be male in some cases. The AWW is usually recruited from the same village, and is responsible for the delivery and coordination of services.

The ICDS in Orissa has now been universalised with all 314 blocks covered under the programme through 335 ICDS projects. Going by the programme statistics for the period from March 1998 to November 2001, the ICDS in Orissa has made significant progress, as seen below:

- There has been considerable increase in the coverage under growth monitoring from 65.42 per cent in March 1998 to 87.02 per cent in November 2001 for children in the 0–3 year age



group and 54.98 per cent to 84.74 per cent in the 3–6 year age group.

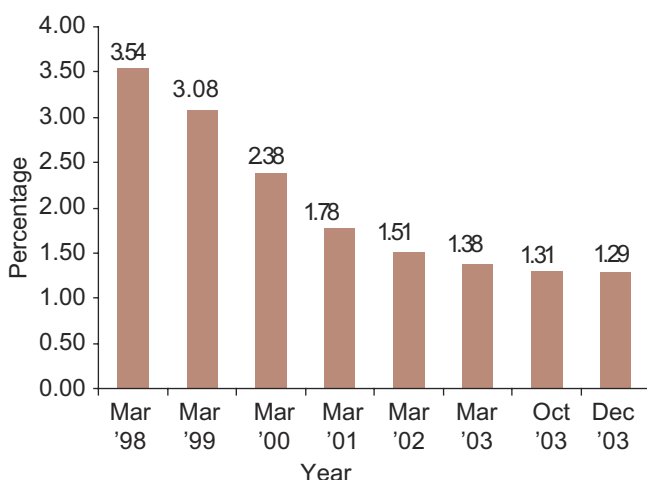
- The percentage of children suffering from severe malnutrition in the 0–3 year age group went down from 3.54 per cent to 1.61 per cent during this period.
- The percentage of children suffering from severe malnutrition in the 3–6 year age group decreased from 1.74 per cent to 0.57 per cent during this period.
- Six districts had 4 per cent or more children of the 3–6 year age group in the severe malnutrition category in March 1998, but there was none at the end of 2001.
- During March 1998, eight districts had at least 2 per cent children of 3–6 year age in the severe malnutrition category. During November 2001, 29 districts had reported less than 1 per cent children in this category.

Between 1998 and 2003, there has indeed been a steady decline in the incidence of both severe and moderate malnutrition for the 0–3 year as well as 3–6 year age groups (see Figs 3.1–3.4). However, the incidence of moderate malnutrition still remains high.

However, recent evaluations of ICDS in four states (including Orissa) by the National Institute of Nutrition have shown that: (a) most of the ICDS beneficiaries come from very deprived socio-economic groups such as Scheduled Castes, Scheduled Tribes, and lower rungs of the backward classes who are vulnerable to nutritional disorders; and (b) the coverage of the National Health Programme, like immunisation, has been better in ICDS areas. As regards the shortcomings, it has been found that: (a) there has been irregular food supply; (b) the coverage of children of age below three years under the Supplementary Nutrition Programme (SNP) has been relatively low; (c) there is little community participation in running the ICDS; (d) the Anganwadis do not have adequate building, and function in an unhygienic physical environment; and (e) the inter-departmental coordination is poor (Radhakrishna et al. 1997).

Fig. 3.1

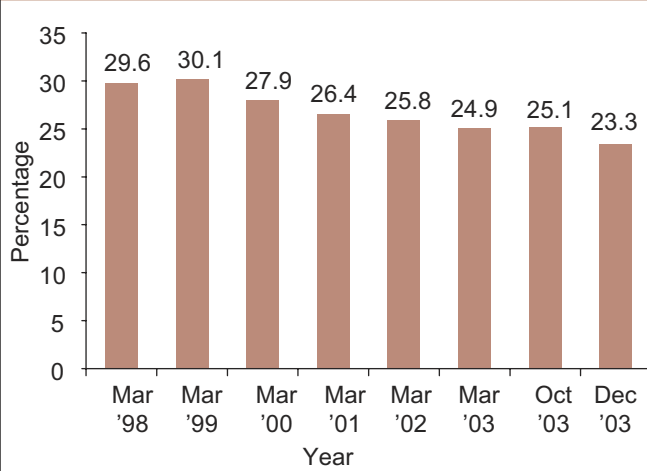
Trend in Severe Malnutrition for 0–3 Years Children (Grade III and IV): Orissa, March 1998 to December 2003



Source: Government of Orissa, *Monthly Reports*, Department of Women & Child Development, Bhubaneswar.

Fig. 3.2

Trend in Moderate Malnutrition for 0–3 Years Children (Grade I and II): Orissa, March 1998 to December 2003



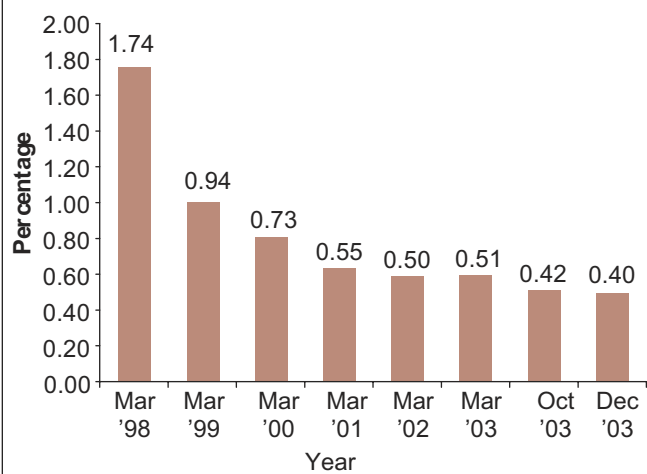
Source: Government of Orissa, *Monthly Reports*, Department of Women & Child Development, Bhubaneswar.

As shown in Table 3.2, the ICDS is most cost-effective among all income transfer programmes. With its vast network at the village level, it has the ability to protect the most vulnerable sections of the population from nutritional stress, both acute and chronic. However, given the severity of



Fig 3.3

Trend in Severe Malnutrition for 3–6 Years Children (Grade III and IV): Orissa, March 1998 to December 2003

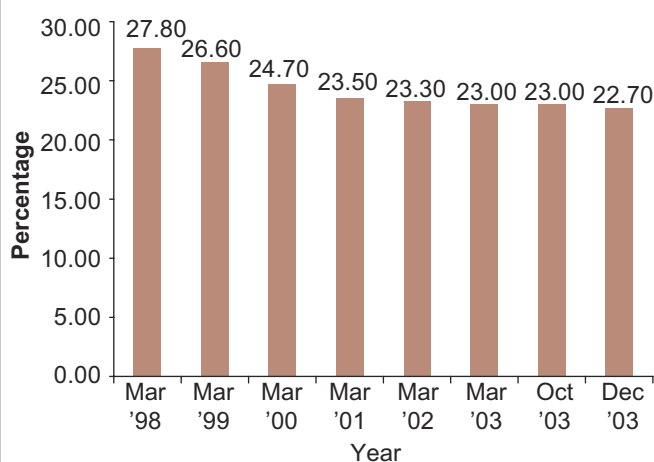


Source: Government of Orissa, Monthly Reports, Department of Women & Child Development, Bhubaneswar.

poverty in Orissa, it is a moot question whether the ICDS provides supplementary nutrition in the true sense of the term or actually a main meal. In fact, there are examples that reveal that in some cases, the food supplied was shared with other family members and thus acted as a substitute for rather than a supplement to domestic food intake. Box 3.4 and Box 3.5 describe some aspects of different interventions through ICDS.

Fig 3.4

Trend in Moderate Malnutrition for 3–6 Years Children (Grade I and II): Orissa, March 1998 to December 2003



Source: Government of Orissa, Monthly Reports, Department of Women & Child Development, Bhubaneswar.

A recent nationwide concurrent evaluation of the ICDS programme pertaining to the year 1998 and carried out by the NCAER (2000) helps us in assessing the performance of different facets of the programme. Certain key findings from the above study on the performance of ICDS in Orissa are summarised below:

- The performance of ICDS programme was rated 'very good' in eight of the 13 districts surveyed.

Box 3.4

Kishori Shakti Yojana (KSY)

This is a special intervention designed for adolescent girls in the age group of 11–18 year under the ICDS Programme. The scheme is primarily aimed at correcting gender disadvantages and providing a supportive environment for the development of adolescent girls. These girls are provided with iron supplements and de-worming tablets through the Anganwadi Centre to improve their nutritional and health status and for control of anaemia, which is highly prevalent in the state among girls in this age group. Apart from this, other interventions like non-formal education, vocational education, self-employment/income generation activity, and training

on improvement of social status have also been included in the package of services to be provided to the adolescent girls. While iron supplements and de-worming tablets shall be provided in all Anganwadi Centres, some of the other items as found suitable for the area shall be selectively implemented in ICDS Projects. The programme is being implemented under ICDS (General) Scheme in 112 blocks (mostly in KBK districts) and was launched in the state on the occasion of International Women's Day, and as part of the World Bank assisted ICDS-III projects for one and half year from 1 April 2003 in the remaining 214 ICDS projects of the state.

Source: Department of Women and Child Development, Government of India, <http://wcd.nic.in/>.

- 53 per cent of Anganwadi centres (AWCs) have *pucca* buildings.
- 52 per cent of rural AWCs reported having adequate space for various requirements and activities.
- Provision of toilets was quite inadequate, with these existing in only 25 per cent of AWCs.
- 53 per cent of AWCs are centrally located.
- Educational status of Anganwadi workers (AWWs) was satisfactory.
- Further, 50 per cent of the AWWs had received in-service training programme on pre-school education (PSE) and joint training with health workers. This is a noteworthy feature affecting the performance of the ICDS programme.
- A high majority (more than 90 per cent) of AWWs maintained records in respect of PSE, births, deaths, immunisation, stock, and community growth chart (80.2 per cent).
- The coverage of SNP under ICDS is quite satisfactory, with 65 per cent in the case of eligible children and 75 per cent in the case of pregnant women and lactating mothers.
- Inventories for SNP have been satisfactory in about 50 per cent of the AWCs in the state.
- In 8 out of 13 reporting districts, 50–75 per cent of AWCs reported supply of poor quality of nutrition.
- Of the eligible children for PSE, 25–50 per cent were enrolled in AWCs. The level of learning of children was average.
- Of the important inventories, a weighing scale was available in 76 per cent of the AWCs, learning kit in only 38 per cent, and medical kit in 42 per cent.
- Utilisation of immunisation services was around 60 per cent.
- 55.81 per cent of reporting households (rural and urban) found AWCs beneficial.

Pradhan Mantri Gramodaya Yojana

Another important scheme, namely, the Pradhan Mantri Gramodaya Yojana (PMGY) was introduced by the Government of India during 2000–01 in place of the Basic Minimum Services Programme. Under PMGY, nutritional support in the shape of supplementary feeding of malnourished children under 3 years of age is a very important component. The nutritional entitlements under this programme are as follows: 300 calories plus 8–10 gms of protein for Grade I and II (moderately malnourished) children, and double the amount for Grade III and IV (severely malnourished) children. Of the total Tenth Plan (2002–07) outlay of the state for PMGY, the nutrition component has been allocated 26.70 per cent (Rs 204.55 crores).

3.4.4 Rural Wage Employment Generation Programmes with a Food Transfer Component (Food for Work)

Among wage employment programmes in rural areas, Jawahar Rozgar Yojana (JRY) and Employment Assurance Scheme (EAS) are the most important ones. The Food for Work programme was started in 2000–01 as a component of the EAS in eight notified drought-affected states in the country, including Orissa. The JRY was revamped in April 1999 and named Jawahar Gram Samridhi Yojana (JGSY). In September 2001, because of their common goals, JGSY, EAS, and Food for Work Programme were

Box 3.5

Public Hearing on ICDS

In the public hearing on ICDS organised by the Right to Food Campaign in Balangir and Kalahandi districts, the following complaints were made regarding the ICDS:

- Because of low provision for transportation costs, Anganwadi workers are unable to provide food to the children in the remote villages.
- There were complaints that ICDS food was being appropriated by private parties in some villages.
- Because of poor functioning of ICDS centres, looking after the young children is a big problem.
- Expectations from Anganwadi workers do not match with their limitations.

Source: Right to Food Campaign, <http://www.geocities.com/righttofood/events/orissa.html>



merged into one scheme, called the Sampoorna Grameen Rozgar Yojana (SGRY).

Data relating to SGRY in respect of financial, physical, and food distribution achievements for the period 2001–02 to 2003–04 is presented in Table 3.4. The financial performance under SGRY is quite satisfactory; there has been a steady increase in the number of man-days created. However, since data on the number of beneficiaries are not available, the average duration of employment per person could not be worked out. Food grains utilised under this programme as a percentage of the total food grains available was rather low in the first two years, but has increased to around 90 per cent during 2003–04. Correspondingly, food grains distributed per man-day created have reached 5 kg in 2003–04. By deducting 10–15 per cent towards the administrative costs from expenditure per man-day created and adding to this the food component valued at Rs 3 per kg, one can see that the programme is offering more than the minimum wage rate. Such a programme of rural employment generation, along with a food transfer component, has the potential of making a dent on chronic poverty and food insecurity at the household level by providing direct nutritional support and increasing purchasing power. The current level of employment generation (about 5.4 million man-days on an average) is, however, clearly

insufficient. As per the 2001 census, there were 4.53 million marginal workers in rural Orissa and if 50 per cent of these are taken as available and seeking additional work, supplementary employment will need to be created for 2.27 million workers.

In conclusion, the rationale for a targeted nutritional support programme is that it would be cost-effective by minimising Type I ('false positive') errors, or errors of false inclusion. In practice, however, there can be a serious identification problem resulting in a large number of Type II ('false negative') errors, or errors of false exclusion. Therefore, unless certain self-targeting properties can be built into a scheme, a universal programme wherein Type II errors are minimised is to be favoured. Thus, given the large food stocks that are presently available with the government, it makes sense to go in for a universal PDS, provided that the functioning of fair price shops can be made flexible so that they cater to the specific needs of the poor.

In Orissa, nutritional deficiency is predominantly of a chronic type and acute undernutrition often translates into chronic undernutrition. Therefore, the *long-term* solution to the problem of food and nutritional insecurity lies in improving entitlement to food, by augmentation of income and through generation of additional and steady employment

Table 3.4

Physical, Financial, and Food Distribution Achievements under SGRY

Year	Total funds available (in million Rs)	Financial		Physical			Food distribution	
		Expenditure (in million Rs)	Percentage of expenditure	In-kind transfer (in MT)			Expenditure per man-day of employment created (in Rs)	Foodgrain utilised per man-day (in kg)
				Employment created (in lakh mandays)	Total food grain available	Total food grain utilised		
2001–02	3556	3123	88	481	176,346	99,965	65	2
2002–03	3684	3295	89	599	371,969	202,297	55	3
2003–04	4039	3861	96	619	326,810	314,781	62	5

Source: Government of Orissa, Panchayati Raj Department.



An Agenda for Community-led Food Security

If we shift our planning mode from the global/national dimension to the local, it will be possible to achieve, by 2020, a world without hunger. For this purpose, simultaneous attention has to be paid to food availability, access, and absorption. The hunger elimination strategy at the level of each individual can be based on the following seven-point action plan.

I. Seven Point Action Programme

1. Identification of the ultra-poor and those going to bed hungry, by the local women and men themselves.
2. Taking the benefits of all available government and NGO programmes to the families suffering from chronic undernutrition and malnutrition (i.e. endemic hunger), and designing a Household Entitlements Card for the purpose of facilitating access to such programmes.
3. Along with the community, developing a strategy for the elimination of poverty-induced protein-calorie under nutrition.
4. Elimination of hidden or silent hunger caused by the deficiency of micronutrients like iron and Vitamin A.
5. Provision of clean drinking water and environmental hygiene in order to promote effective biological absorption of food in the body.
6. Promotion of market-driven micro enterprises supported by micro credit, and a producer-oriented marketing system operated by local self-help groups.
7. Special attention to be paid to women and children, with particular reference to reproductive health and maternal and foetal undernutrition and malnutrition, for preventing low birthweight babies (i.e. less than 2.5 kg at birth).

Precise operational details of the above seven-point action plan can be developed by local communities based on local resources and opportunities. One female and one male member of the local bodies can be trained to serve as a Community Food Security Corps.

II. Launching a Sustainable Community Food and Water Security System

The Community Food Security Corps of women and men can foster the following activities to ensure sustainable food security in the area:

- **Field Gene Bank:** This involves *in-situ* on-farm conservation local varieties of crops, through the revitalisation of the conservation traditions of rural and tribal families, particularly women. The Protection of Plant Varieties and Farmer's Rights Act, now under consideration of the Parliament of India, will help to give recognition and reward to the *in-situ* on-farm conservation work of farm families.
- **Village Seed Bank:** The rural families often lose their seed stock due to drought, flood, and other natural calamities. Therefore, in each village, a Community Seed Bank can be established through a Seed Security Self-Help Group, supported by micro credit.
- **Village Water Bank:** Through community partnership, the village can conserve rainwater, use groundwater sustainably, and adopt a conjunctive use of rain, surface, ground, and recycled wastewater. The village Water Bank System will be managed by a group set up by the local community.
- **Grain Bank:** Such a system will help to pay concurrent and adequate attention to all links in the conservation-cultivation-consumption chain. It will help to ensure both genetic diversity and food and water security. At the same time, different activities undertaken by local self-help groups and supported by micro credit will be economically and socially sustainable and will involve low transaction costs.
- **Block Grain Bank:** It is important to maintain grain reserves of local staples to meet emergencies like drought and natural calamities. For this purpose, a Community Grain Bank will be established at a suitable location, each to serve about 25,000 families. Thus the Community Food Security System will foster a sustainable people-centred and people-controlled method of ending food insecurity at the level of each individual.

Source: Extract from M.S. Swaminathan (2000), 'Community-Led Approaches to Ending, Food Insecurity and Poverty', Public Lecture at the International Fund for Agricultural Development (IFAD), Rome, 12 September.



opportunities for the underemployed and the unemployed.

In the short-run, certain supplementary and emergency feeding programmes have a critical role to play. They can reduce the nutritional stress of very vulnerable sections of the poor population facing entitlement failure or adverse intra-family distribution of food.

Particular mention should be made of the Supplementary Nutrition Programme run by the Department of Women & Child Development of the Government of Orissa. Under this programme, supplementary nutrition is provided to children (in the age group of 0–6 year) and expectant and nursing mothers in 17 districts. There were 30.46 lakhs beneficiaries under this programme during 2002–03. In addition, in the KBK districts (Kalahandi, Balangir, and Koraput), emergency feeding programme is under implementation for the old, indigent, and infirm population.

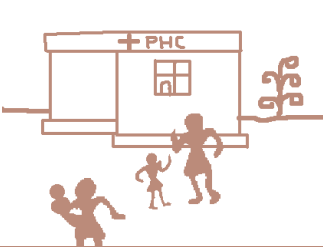
The efficacy of these special nutritional support programmes lies in their self-targeting nature. However, in order that such programmes are viable in the long run, it is imperative that the growth rate of the economy is stepped up and employment opportunities expanded.

Therefore, while the macro level growth process is expected to provide the economic foundation for sustainable long-term food security, it is also important to empower communities to manage the risk and uncertainties of food access in the context of the local economy and institutions. Mechanisms such as grain banks, run by the villagers, must go hand in hand with the revival and development of the productive resources of villages, such as land, water, and forests. An agenda for community-led food security programme is outlined in Box 3.6.



CHAPTER 4 **Health Condition**





Health Condition

According to the Constitution of the World Health Organization (WHO), 'Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.' By this definition, health can be seen as an important determinant of well-being in the broadest sense of the term.

Improved health is desirable not only in itself, but also because it leads to enhanced capability to work and to participate in economic development. Improved health and nutritional status also contribute to increased life expectancy by enhancing resistance to micro organisms, in particular, those causing infectious and communicable diseases.

Good health may be thought of as an important livelihood asset and illness can be a major cause of impoverishment. This is particularly true where the majority of the population lacks any formal health insurance and both access to public health care facilities and its quality are poor. A high incidence

of poverty aggravates the situation by making the ability to pay for health care that much less.

4.1 Mortality Condition

4.1.1 Mortality Rate

The first stage of demographic transition is characterised by a high mortality rate. This declines with advances in medical knowledge and technology as the case fatality rate of a number of diseases comes down. Thus, the mortality rate is a robust indicator of the overall health status of a population as it moves towards the second stage of demographic transition.

The data on the level and extent of decline in mortality rate for the decades of the 1980s and 1990s in Orissa and other low-income states is presented in Table 4.1. The percentage decline in mortality in the 1980s as well as in the 1990s has been the least in Orissa as compared to the other states and the level of mortality in Orissa by the end of the 1990s has remained the highest. Orissa started off with a level of mortality comparable to that of Bihar and

Table 4.1
Level of, and Trend in, Crude Death Rate, 1980–2000

State	Year*		Per cent decline	Year *		Per cent decline
	1980–82	1987–89		1990–92	1998–2000	
Bihar	13.67**	12.6	7.80	10.43	9.10	12.78
Madhya Pradesh	15.57	13.5	13.28	13.10	10.67	18.58
Orissa	13.47	12.7	5.69	12.07	10.73	11.05
Rajasthan	13.27	12.1	8.79	10.07	8.53	15.23
Uttar Pradesh	16.00	13.43	16.04	12.03	10.43	13.30
India	12.27	10.73	12.50	9.87	8.73	11.49

*Average of three years

** Average for the years 1981, 1982, and 1983

Source: (i) Government of India (1999), *Compendium of India's Fertility and Mortality Indicators 1971–1997* based on the Sample Registration System (SRS), Registrar General of India, New Delhi, 1999;

(ii) For 2000, Government of India (2001), *Sample Registration Bulletin*, Registrar General of India, Vol. 35, No. 2, New Delhi.

Rajasthan but the pace of decline through the 1980s and 1990s has been much less in the case of Orissa. The Crude Death Rate (CDR) in Orissa in 2001 and 2002 was 10.4 and 9.8 respectively and the extent of decline in CDR between 2000 and 2002 was about 8.7 per cent.

4.1.2 Disease-wise Causes of Mortality

The relatively slow rate in the decline in mortality seen above leads us to analyse the major types of diseases accounting for mortality. These diseases will be those with a high prevalence rate and/or high case fatality rate. The Registrar General's *Survey of Causes of Death* (SCD) provides data (for rural area only) for this purpose. For recent years, this data has been presented for 10 most important killer diseases in an aggregate form. The only other source of data on causes of death is based on death certificates issued

by the attending physicians. This data, pertaining to the year 2000 and based on a total of 24,999 deaths, is presented in Table 4.2.

It can be seen that infectious and parasitic diseases account for a little more than one-fifth of all deaths while diseases of the circulatory system also have a share of nearly one-fifth in all deaths. Perinatal deaths account for as much as 13 per cent of all deaths. These three cause groups thus account for a little more than half of all deaths. Diseases of nervous system, respiratory system, and digestive system together account for another 20 per cent of all deaths.

4.2 Infant And Child Mortality

4.2.1 Trend in Infant Mortality

Infant mortality rate (IMR) continues to be the highest in Orissa among all the states. The absolute magnitude of infant and child deaths is staggering (Box 4.1). The rate of decline in IMR has been rather slow and this is a cause for concern: in the 16-year period between 1981–83 and 1995–97, it declined by 25 per cent, i.e. at the rate of about 1.6 per cent per annum. This is lower than the rate of decline in IMR in other low-income states over the same period (Uttar Pradesh: 44 per cent, Bihar: 35 per cent, Madhya Pradesh: 28 per cent), as well as all-India (33 per cent).

In the 1980s, the rate of decline was in fact lower. Between 1981–83 and 1990–92, IMR in Orissa declined by only 8.4 per cent as against 34.5 per cent in Bihar, 17.2 per cent in Madhya Pradesh, 20 per cent in Rajasthan, 35.1 per cent in Uttar Pradesh and 25.2 per cent for India (Government of India 1999a). However, it should be pointed out that the rate of decline has been greater in the 1990s—nearly 2.5 per cent per annum (Table 4.3).

The relatively slow decline in IMR can be partly explained in terms of the relative decline in different components of infant mortality. Neonatal mortality (NNM) constituted 63.7 per cent of infant deaths. Within NNM, perinatal mortality constitutes 62 per

Table 4.2

Distribution (per cent) of all Deaths (Rural + Urban) by Major Cause Groups, 2000

Sl. No.	Major cause group	Per cent to total
1.	Intestinal, Infectious, and Parasitic Diseases	21.68
2.	Diseases of the Circulatory System (Anaemia; heart attacks, etc.)	18.39
3.	Conditions Originating in Perinatal Period	12.91
4.	Injury, Poisoning etc.	9.54
5.	Diseases of the Nervous System	7.82
6.	Diseases of the Respiratory System (Asthma & Bronchitis; TB of Lungs; Pneumonia)	5.97
7.	Diseases of the Digestive System (Gastroenteritis; Peptic Ulcer; Dysentery, etc.)	5.24
8.	Pregnancy, Childbirth and Puerperium	3.08
9.	Endocrine, Nutritional and Metabolic Diseases	2.88
10.	Neoplasm	1.93
11.	Others	10.56

Source: State Bureau of Health Intelligence, Directorate of Health Services, Government of Orissa.

The Challenge of Infant and Child Mortality in Orissa: Data from Early 1990s

In 1993, Orissa reported 609,250 live births. The infant mortality rate of 110 in that year translated into 67,017 infant deaths. In 1992, the number of deaths of children in the 1–4 year age group was just about one-third of the number of infant deaths. Thus, the total number of deaths in the 0–4 year age-group in 1993 in Orissa would be around 89,356. An alternate estimate gives a much higher figure: the crude death rate in Orissa during 1990–92 was 12.07 per thousand population. Taking the total population of Orissa in 1991 as close to 32 million, the total number of deaths would be about 386,240. Since deaths in the 0–4 year population are known to constitute 36.5 per cent of all deaths, infant and

child deaths would therefore be nearly 104,977. Thus, one such death takes place every four to six minutes.

In 1992, infant deaths constituted 27.3 per cent of all deaths while child deaths (1–4 year) contributed another 9.2 per cent of all deaths. Thus, deaths in the 0–4 year age group constituted 36.5 per cent of all deaths whereas this age group constituted only 11.4 per cent (in 1991) of the total population. In other words, the crude death rate in the 0–4 year age group (36.5 per cent) was more than three times the crude death rate for the population as a whole (12.1 per cent) in 1991.

Source: (i) Government of Orissa (1998), *Health Statistics of Orissa 1998*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar; (ii) Government of India, *Sample Registration System Bulletin*, Office of the Registrar General, New Delhi, various years.

cent of all neonatal deaths. Thus, perinatal deaths alone account for some 35 per cent of infant deaths. Post-neonatal deaths constitute only about 36.3 per cent of all infant deaths. The post-neonatal mortality rate of Orissa seems to have declined to a greater extent than the perinatal mortality rate, as suggested by the relevant data for Orissa and India (Sample Registration System (SRS); cited in Government of Orissa 2002c, p. 12). In 1997, the difference in the post-neonatal mortality rate between Orissa and India was 20.7 per cent, while the same with respect to perinatal and neonatal mortality rates were 28.6 per cent and 26.9 per cent respectively. In fact, SRS data over a long period (1972–95) shows that while post-neonatal mortality declined by 62 per cent during this period, neonatal mortality declined by only 33 per cent.

The relatively slow pace of decline in IMR is important to note as the trend in infant and child mortality rates has a significant bearing on the trend in overall mortality rates (Box 4.1). However, it is noteworthy that, as per the SRS data, IMR has come down to 91 in 2001 and further to 87 in 2002. This implies an average annual rate of decline of 5.2 per cent between 2000 and 2002. It may be pointed out that if this rate of decline continues, an IMR of 45 per thousand live births should be reachable by 2010.

4.2.2 Causes of Infant and Child Deaths

Given the pre-dominant role of IMR and child mortality in the overall mortality rate as well as the concentration of infant deaths in the neo-natal period, it is worthwhile presenting the available

Table 4.3

Level of, and Trend in, Infant Mortality Rate, 1980–2000, Orissa

Year		Per cent decline	Year		Per cent decline
1980–82	1987–89		1990–92	1998–2000	
136.7	123.0	10.0	120.3	97.0	19.4

Source: (i) Government of India (1999), *Compendium of India's Fertility and Mortality Indicators 1971–1997* [Based on the Sample Registration System (SRS)], Registrar General of India, New Delhi.

(ii) For 2000, Government of India (2001), *Sample Registration System Bulletin*, Vol. 35, No. 2, Registrar General of India, New Delhi.

data on causes of infant and child death. Data on causes of infant death is brought out by the Registrar General of India. This is collected through sample Primary Health Centres (PHCs) at the state level, on the basis of 'lay diagnosis reporting'. Since the quality of the data from the point of view of coverage may not be very good—any one year's data may not be representative—the average figures for three latest years (1998–2000) have been considered, and are given below.

As can be seen from Table 4.4, pre-maturity, resulting in low birth weight of babies, is the main cause of infant deaths, accounting for 38.5 per cent of such deaths. Another 30 per cent of the infant deaths are due to infections relating to the circulatory system. Broadly speaking, these causes of infant death reflect inadequate antenatal, natal, and post-natal care.

In particular, three factors may explain the high level of IMR in Orissa: first, poor availability of professional attendance at birth; second, high percentage of low birth weight babies, and third, lack of professional post-natal care. These three factors together have a bearing on neonatal mortality, which, as seen above, constitute about 64 per cent of infant deaths in Orissa. The first factor: non-

professional attention at birth accounts for 65.5 per cent of all births. The same was more than 75 per cent in the case of nine districts and, in two districts (Malkangiri and Nabarangpur), it is between 85 and 89 per cent. This means that immediate care of the newborn is not available.

The second factor: low birth weight, is an equally important factor in contributing to the high IMR. As already mentioned, prematurity accounts for some 38 per cent of infant deaths (Table 4.4). Maternal malnutrition and malaria are among the important causes of low birth weight babies. It has been estimated that 40 per cent of neonatal deaths occur in the case of low birth weight babies.

The coverage of post-natal care also seems to be quite poor: only 18 per cent of women were visited by the Auxiliary Nurse Midwife (ANM) within two weeks of delivery. For as many as 20 districts, this percentage was below 20 (see Table 4.25 below). This means that post-natal care to prevent respiratory infections, diarrhoea, malaria, measles, and post-measles complications (which account for at least 20 per cent of infant deaths) is not available at hand. The high IMR can be thus explained by the influence of these three factors.

From the causes of child deaths listed above (Table 4.5), it can be seen that in many cases such deaths are avoidable by basic curative care. Lack of access to safe drinking water and adequate nutrition are the other underlying factors behind child deaths. According to Orissa Voluntary Health Association (1995, p. 24), diarrhoea accounts for 28 per cent (with a case fatality rate of 7.5 deaths per hundred), Acute Respiratory Infection (ARI)/pneumonia for 15 per cent (with a case fatality rate of 5.7 per cent), measles for 10 per cent and tetanus for 6 per cent of deaths of children under 5 years of age. Other important fatal ailments include tuberculosis infection, fevers like malaria, typhoid, and hepatitis. In general, infectious and parasitic diseases as well as diseases of the respiratory and digestive systems, both bacterial and viral in nature, are mainly

Table 4.4

Contribution (per cent) to Infant Deaths by Major Causes, Rural Orissa, 1998–2000

Specific causes	Per cent of total deaths
Prematurity	38.5
Pneumonia	15.4
Respiratory Infection of newborn	8.7
Anaemia	8.1
Bronchitis and Asthma	5.3
Tetanus	2.9
Diarrhoea of newborn	1.8
Others	19.3

Source: Government of India, *Causes of Death (Rural)*, India, Annual Report, Registrar General of India, various years.

Table 4.5
**Contribution (per cent) to Child
 (1–4 year) Deaths: Major Causes,
 1998–2000**

Specific causes	Per cent of total deaths
Pneumonia	18.8
Diarrhoea and Gastroenteritis	14.2
Anaemia	12.4
Jaundice	8.6
Typhoid and Paratyphoid	7.3
Malaria	6.5
Meningitis	5.4
Acute Abdomen	4.2
Others	32.6

Source: Government of India, *Causes of Death (Rural)*, India, Annual Report, Registrar General of India, various years.

responsible for under-five mortality. Perhaps the single most important factor for reducing the prevalence rate and case fatality rate of major infant and childhood diseases, is improvement in the nutritional status as well as in antenatal and intra-natal care.

As per the data of State Bureau of Health Intelligence for the year 2000, the following picture emerges. Out of a total of 5560 under-five deaths, deaths due to diarrhoea were 156 in number (accounting for 2.86 per cent of total deaths); deaths due to ARI were 516 in number (9.25 per cent of total deaths); and deaths due to measles were 19 (0.3 per cent). In this data, the identified causes of death account for a very small per cent of the total reported number of under-five deaths.

It is important to state that malnutrition is related to, but not coterminus with, poverty, in the sense that nutritional stress is concentrated in particular vulnerable groups within the poor and ultra poor population, namely, women and children. This could be the reason why the correlation between estimates of child mortality and child malnutrition is found to be quite strong at 0.71 [based on the data for 76 regional divisions of the National Family

Health Survey (*NFHS 1992–93*)], whereas that the correlation between child malnutrition and poverty index is rather weak at 0.38 (Mari Bhat and Zavier 1999, pp. 3022–23).

A multiple regression analysis based on data from 296 districts of India for the year 1981 (Dreze and Sen 1995, pp.165–66) shows that, other variables being constant, a 50 per cent reduction in the incidence of rural poverty (from the actual 1981 level) reduced the predicted value of under-five mortality from 156 per thousand to 153 per thousand. On the other hand, an increase in the crude female literacy from, say, 22 per cent (the actual 1981 figure) to 75 per cent reduced the predicted value of under-five mortality (for males and females combined) from 156 per thousand (the actual 1981 figure) to 110 per thousand (Dreze and Sen 1995, p. 165).

The importance of nutritional status (and the associated factors such as food security) in reducing infant and child mortality is outlined above to put the role of modern health care and medical technology in a proper perspective. This, however, is not to deny the role of medical technology and modern health care in influencing the case fatality rates of major infant and childhood diseases.

Box 4.2

**Infant Mortality Reduction
 Mission, 2001**

The Government of Orissa launched an Infant Mortality Reduction Mission on 15 August 2001 with the objective of reducing the IMR to 60 per 1000 live births by 2005. The following major strategies have been envisaged under the Mission in order to achieve this objective.

- Malaria chemoprophylaxis of pregnant women
- Improved newborn care
- Encouraging institutional deliveries
- Community education for greater involvement in maternal and child health services
- Health services for urban poor and migrant populations.

Source: Infant Mortality Reduction Mission, Government of Orissa, 15 August 2001.

Maternal Mortality in Orissa

There is known to be a high correlation between infant mortality and maternal mortality. For Orissa, according to UNICEF, the maternal mortality rate (MMR) (number of maternal deaths per one lakh live births) is 738, which is the highest among major Indian states. Taking the reported number of live births in 1993 to be 609,280 in the state, this translates into something like 4496 maternal deaths in that year. However, there seems to have been a significant decline in MMR for Orissa since 1995. According to the UNICEF estimate, MMR has come down to 367 in the year 2001 (India: 407).

Some of the most important causes of maternal mortality are: bleeding during pregnancy and

puerperium; maternal anaemia; toxemia; abortion; sepsis; and malpositioning of the foetus. While these specific and immediate causes of maternal deaths are not directly responsible for infant deaths, one can say in general that poor antenatal and intranatal care play a major role in the high IMR and MMR in Orissa.

While medical causes of maternal deaths have been conventionally emphasised, some studies clearly bring out the critical significance of certain socio-cultural, economic, and educational factors which have a bearing on timely and appropriate health-seeking behaviour, availability of types of services and of special care at health care facilities.

Source: National Institute of Applied Human Research & Development (2001), *Study of Social Factors Contributing to Maternal Mortality*, Orissa State Report, Cuttack; United Nations Children's Fund (UNICEF) (1995), *The Progress of Indian States*, UNICEF, New Delhi.

4.3 Morbidity Condition

4.3.1 Excess Morbidity Burden

IMR is regarded as a sensitive indicator of health status while CDR and under-5 mortality are essentially health outcomes, which are better regarded as goals of development policy including health policy. Accessibility and utilisation of health care facilities have a bearing on the health policy but by themselves do not impact on health outcomes in the short to medium-term. This merits an examination of a situation of 'excess' morbidity in Orissa.

It is in general true that there is an inverse relation between overall mortality rate and overall incidence of disease rate: as mortality declines and life expectancy increases, the chances of survival improve significantly but the propensity to fall ill increases more or less proportionately. Conversely, at a high mortality rate, morbidity rate tends to be less. This is something that has been observed in both developed and developing countries over a period of time. The reasons are only partially known: appearance of degenerative diseases as life expectancy increases; increased illness perception, and so on.

Therefore, at comparable levels of mortality, one can expect morbidity rates to be roughly the same. This is provided by the roughly comparable levels of mortality in the cases of Bihar, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh in the mid-1980s. Table 4.6 shows that the morbidity incidence rate is significantly higher in the case of Orissa as compared to the states like Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, and the same is true of chronic ailments also. This represents what one may call the excess morbidity burden, and is particularly noticeable in the less than 1 year, and 1–4 year, age groups. In the case of Tamil Nadu and Kerala, morbidity rates are even higher, corresponding to the much lower mortality levels prevalent there.

4.3.2 Trend in Morbidity: The Case of Four Major Diseases

Malaria, tuberculosis, gastroenteritis, and vaccine-preventable diseases (VPDs) have significantly contributed to morbidity. See also Boxes 4.4, 4.5 and 4.6.



Table 4.6

Crude Death Rate (CDR) and Morbidity Prevalence Rate, Temporary and Chronic Ailments (Rural and Urban)

State	CDR (1985–87)		Morbidity prevalence rate (1986), all ages		Morbidity prevalence rate (1986–87) by age group				No. of persons suffering from chronic ailments per 100,000 persons, all ages	
	Rural	Urban	Rural	Urban	Rural		Urban		Rural	Urban
					< 1	1–4	< 1	1–4		
Orissa	13.4	8.0	24.20	24.38	30.40	35.50	55.55	34.14	2781	2312
Bihar	13.9	8.6	10.16	11.42	14.08	17.13	27.71	18.48	2343	2162
Madhya Pradesh	13.7	8.8	20.89	21.72	35.91	28.73	47.29	34.24	1165	1350
Rajasthan	12.2	8.6	17.33	12.55	19.39	19.62	27.22	18.88	1276	884
Uttar Pradesh	14.0	9.9	13.22	10.54	21.06	21.08	26.38	11.63	1493	1213
Tamil Nadu	9.6	7.2	33.99	31.98	48.32	48.11	55.35	57.28	2226	1990
Kerala	6.2	6.6	71.21	61.84	121.02	157.16	154.40	140.76	8368	8874

Note: (i) It should be pointed out here that data for the mid-1980s have been purposively used since, around this time-point, the CDR was roughly the same for all the low-income states and, therefore, one would not expect any major differences in morbidity rates (see text). (ii) Morbidity Prevalence Rate is the number of spells of temporary ailment prevailing in the reference period of two weeks per 1000 persons exposed to risk.

Source: (i) For CDR: Government of India (1995), *Sample Registration System Bulletin*, Office of the Registrar General; (ii) For morbidity data: Government of India (1992), *Morbidity and Utilisation of Health Care Services*, NSS, 42nd Round (1986–87), *Sarvekshana*, 61st Issue, April–June.

Malaria

Malaria has staged a comeback in the last 10–15 years as the number one public health problem in the state. The relative magnitude of the problem can be gauged from the fact that in 1998, Orissa (with a share of less than 4 per cent of all-India population), accounted for 28.6 per cent of the detected cases of malaria in India (two million) and 62.8 per cent of all malarial deaths in the country, as per the National Malaria Eradication Programme Report for 1998 (Government of India 1999c).

This is mainly due to the predominance of the deadly *Plasmodium Falciparum* (PF) species responsible for severe (cerebral) malaria—36.2 per cent of PF cases occur in Orissa. There is a marked endemic nature of malaria in Orissa—the four districts of Kandhamal, Keonjhar, Sundargarh, and Mayurbhanj (together accounting for 18 per cent of the state's population)

account for 47 per cent of all cases of malaria. These four districts account for 50 per cent of all PF malarial cases and 40 per cent of the malarial deaths in the state (Orissa Voluntary Health Association 1995, p. 25).

The available epidemiological data for the period 1961–97 gives us an idea about the level and trend in the incidence of malaria as well as the increase in case-fatality rate. This is done by using the percentage of PF cases in the total number of positive cases (PF per cent) as a proxy (Table 4.7). Using the Slide Positive Rate as an indicator of incidence, it can be said that the incidence rate has remained at a high level of more than 10 per cent since 1973 and has not declined discernibly between 1980 and 1997. The PF per cent, on the other hand, has discernibly increased from about 72 per cent in the late 1970s to more than 86 per cent by 1997.

Anti-Malaria Programmes in Orissa

The National Anti-Malaria Programme (NAMP), being implemented in the entire state, includes active and passive surveillance of fever cases, presumptive treatment of all fever cases, and presumptive radical treatment of all suspected cases in high endemic areas. Distribution of drugs through Drug Distribution Centres (DDCs) and Fever Treatment Depots (FTDs), management of complicated malaria cases, vector control through insecticides by residual spraying of DDT, distribution of medicated mosquito nets, and anti-larval measures in urban areas are also part of the programme.

The Enhanced Malaria Control Project (EMCP) has been taken up with the assistance of the World Bank and the Government of India, from 1997–98 onwards. About 158 blocks in 21 districts out of a total 314 blocks in the state, with more than 25 per cent tribal population and being hyper endemic, have been covered under the EMCP. A proposal for inclusion of another 82 blocks under EMCP has been sent to Government of India. The remaining 25 high-risk blocks

are covered by normal activities under the NAMP. The components of this programme include Early Detection and Prompt Treatment (EDPT), selective vector control, personal protection, epidemic planning and institutional strengthening through training to all categories of staff, improvement of the Management Information System, as well as Information, Education, and Communication (IEC) activities.

Recently, two major initiatives have been launched under the EMCP in Orissa, which can increase the effectiveness of malaria control by making a dent on both the morbidity and mortality caused by malaria. A rapid diagnostic kit has been developed and can detect on the spot whether the blood is infected by the parasite. This will be particularly effective in remote and isolated parts of districts such as Keonjhar, where malaria is endemic. Also, a simplified treatment regimen compared to the present one, is soon to be introduced by EMCP that will greatly reduce non-completion of medication, which is presently a major problem.

Source: (i) Source: Government of Orissa (2002), *Health Statistics 2000–01*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar; (ii) *The New Indian Express*, Bhubaneswar, 6 September 2003.

Revised National Tuberculosis Control Programme in Orissa

The Revised National Tuberculosis Control Programme (RNTCP), based on the DOTS (Directly Observed Treatment Short-course) strategy, began as a pilot in 1993 and gradually expanded to cover a population of 20 million by mid-1998. Rapid RNTCP expansion began in late 1998. The present coverage is 829 million (around 76% of the population).

The implementation of RNTCP in Orissa began in October 1997 with the support of Danida (DANTB), in a phased manner covering 14 predominantly tribal districts namely, Mayurbhanj, Keonjhar, Sundergarh, Sambalpur, Deogarh, Jharsuguda, Koraput, Rayagada, Malkangiri, Nabarangpur,

Kalahandi, Nuapada, Gajapati and Kandhamal with excellent results. Rest of 16 districts namely, Balasore, Bhadrak, Balangir, Sonapur, Cuttack, Jagatsinghpur, Jajpur, Kendrapara, Angul, Dhenkanal, Ganjam, Boudh, Khurda, Nayagada, Puri and Bargarh were covered by December 2004.

The new smear positive case detection rate has gradually improved to 51 per lakh (68%) in 2004 but is still low. The cure rate at 80% in 2003 is also low and has a downward trend. Following the coverage of all districts of Orissa with quality RNTCP services, free diagnosis and treatment for TB is included in GoO's Panchabyadhi Chikitsa (PC) programme.



Table 4.7
**Epidemiological Data on Malaria in Orissa,
 1961–2003**

Year	Slide Positive Rate (per cent)	PF (per cent)	Year	Slide Positive Rate (per cent)	PF (per cent)
1961	1.4	13.3	1983	9.3	79.1
1962	2.1	25.2	1984	10.2	79.7
1963	2.3	23.1	1985	8.6	75.3
1964	1.9	21.9	1986	11.2	80.0
1965	1.3	29.9	1987	9.4	63.2
1966	0.4	71.8	1988	7.2	83.4
1967	0.8	83.2	1989	7.9	85.6
1968	1.3	78.2	1990	8.7	84.7
1969	1.4	77.3	1991	10.5	84.7
1970	1.2	47.2	1992	9.7	84.8
1971	2.6	40.8	1993	9.7	84.9
1972	5.5	55.6	1994	10.2	85.6
1973	13.9	41.8	1995	11.2	85.8
1974	14.9	51.9	1996	11.8	86.3
1975	17.4	39.8	1997	10.3	86.4
1976	15.9	63.8	1998	12.1	85.4
1977	11.3	64.5	1999	10.6	84.4
1978	22.3	72.2	2000	11.8	84.0
1979	39.6	72.9	2001	11.0	83.5
1980	10.4	75.3	2002	10.4	83.2
1981	10.9	78.8	2003	9.5	83.0
1982	10.7	80.9			

Note: (i) Slide Positive Rate is the number of malaria positive blood samples as per cent of total number of blood samples examined;
 (ii) PF per cent: Per cent of Plasmodium Falciparum cases in total number of positive cases.
 Source: Government of Orissa, *Health Statistics of Orissa*, State Bureau of Health Intelligence, Directorate of Health Services, various years.

Tuberculosis

As in the case of malaria, even after four decades of effort, tuberculosis remains a major public health problem in Orissa. The available data for the period between the mid-1980s and 2000–01 shows that the prevalence rate has not only been high but has also showed signs of increase from time to time (Table 4.8). This seems to be partly due to a non-decreasing percentage of old cases in the total number of cases treated (Table 4.8). Though the case-fatality rate has

come down the percentage of cases in which the treatment regime has not been completed is believed to be high.

Gastroenteritis

The case of gastroenteritis is somewhat similar to tuberculosis. Here the available evidence clearly suggests that while case-fatality rate has come down during the period 1979–94 (though it is still high at more than 7 per cent), the prevalence rate has steadily increased during the same period (Table 4.9).

Data on severe diarrhoea has been collected under the Orissa Multi Disease Surveillance System (a weekly reporting system) covering 5927 sub-centres, 1162 PHCs (new), 314 PHCs/Community Health Centres (CHCs), and 54 District Headquarters Hospitals (DHH) and Subdivisional Hospital (SDH). This was done for the years 2002 and 2003 when the reporting was more than 90 per cent. The data shows that in 2002 there were 156,872 cases of severe diarrhoea resulting in 453 deaths (and thus a case fatality rate of only 0.28 per cent), and in 2003 there were 144,672 cases of severe diarrhoea resulting in 513 deaths (case fatality rate of 0.35 per cent).

VPDs

The example of VPDs highlights the achievements possible from an aggressive, well-motivated immunisation drive, such as the Universal Immunisation Programme (UIP) introduced in 1985–86. Of the six VPDs, the number of reported cases of diphtheria, measles, whooping cough and poliomyelitis in Orissa has come down between 1985 and 1993, whereas it increased during 1980–85 for all except whooping cough. However, the number of reported cases of tetanus and tuberculosis have

Panchavyadhi Chikischa (‘Treatment for Five Diseases’)

In order to improve the economic access of people to public health care facilities, the State Government has started, from July 2001, the *Panchavyadhi Chikischa* scheme which guarantees free treatment, including free medicine, for five common communicable diseases, viz., malaria, leprosy, diarrhoea, acute respiratory infections, and scabies. Subsequently, tuberculosis has been added to this list. These diseases constitute approximately 70 per cent of the patient load in the primary health institutions and affect a large number of poor people. Under the scheme, clinical protocols (standard treatment guidelines) have been drawn up for treatment of these diseases and distributed to all doctors and institutions. The scheme does not, however, offer treatment for complications emerging out of these diseases.

Source: Government of Orissa (2002), *Health Statistics 2000–01*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar.

increased, apparently quite sharply in the latter case (Table 4.10). This is unlike most other states, notably the two low-income states of Madhya Pradesh and Rajasthan.

4.3.3 National Disease Control Programmes

Given the challenges of public health control and management, vector disease control programmes have a special significance in the context of Orissa. The two major public health concerns in Orissa are malaria and tuberculosis. Apart from these, filariasis, leprosy, corneal blindness, and goiter are the other major public health concerns. The magnitude of expenditure on the National Disease Control Programme is an indicator of the effort that is going into the control of these conditions. The data on plan expenditure is presented in Table 4.11.

A few observations on Table 4.11 are in order. First, malaria control accounts for the bulk of the expenditure. Second, allocations to other disease control programmes appear to be inadequate. Finally, there has not been a steady increase in allocation for any of the mentioned programmes.

4.3.4 Pattern of Illness and Early Mortality: Productive Time and Opportunities Foregone

In the first stage of ‘health transition’, the preponderance of infectious and communicable diseases is a typical pattern. These diseases also account for much of the mortality in this

Table 4.8

Epidemiological Data on Tuberculosis in Orissa, 1986–2001

Year	Total (old+new) TB cases treated	Prevalence rate (per 1000 persons)	Old cases as per cent of total	Year	Total (old+new) TB cases treated	Prevalence rate (per 1000 persons)	Old cases as per cent of total
1986–87	60,653	2.08	55.5	1994–95	75,137	2.23	57.2
1987–88	63,706	2.15	53.3	1995–96	81,240	2.37	58.3
1988–89	71,346	2.36	52.5	1996–97	88,216	2.52	65.3
1989–90	74,448	2.42	53.5	1997–98	85,281	1.52	65.1
1990–91	72,136	2.30	55.3	1998–99	79,878	2.16	69.5
1991–92	72,483	2.28	56.3	1999–2000	78,445	2.12	59.0
1992–93	71,636	2.21	57.5	2000–01	64,709	1.76	68.8
1993–94	70,949	2.15	58.8				

Source: Government of Orissa, *Health Statistics of Orissa*, State Bureau of Health Intelligence, Directorate of Health Services, various years.



Table 4.9

Case Fatality Rate and Prevalence Rate of Gastroenteritis in Orissa, 1979–94

Year	No. of cases	No. of deaths	Case fatality rate (in per cent)	Prevalence rate (per 10,000 persons)
1979	2284.4	290.4	12.7	0.9
1980	2345.6	285.4	12.2	0.9
1981	2533.0	294.6	11.6	0.9
1982	2470.2	262.8	10.6	0.9
1983	2827.6	246.4	8.7	0.1
1984	2922.2	279.4	9.6	0.1
1985	3277.4	326.0	9.9	1.1
1986	4278.3	453.0	10.6	1.5
1987	4675.6	532.2	11.4	1.6
1988	6767.0	712.6	10.5	2.2
1989	9824.6	1064.0	10.8	3.2
1990	10,646.4	1099.8	10.3	3.4
1991	11,875.2	1156.4	9.7	3.7
1992	14,495.6	1292.0	8.9	4.3
1993	14,395.2	1185.6	8.2	4.4
1994	13,621.8	990.6	7.2	4.1

Note: (i) Figures of number of cases and number of deaths are 5-year moving averages centred on the years shown;

(ii) Prevalence rates are based on interpolated figures of population using the growth rate for 1981–91.

Source: Government of Orissa, *Health Statistics of Orissa*, State Bureau of Health Intelligence, Directorate of Health Services, various years

Table 4.10

Number of Reported Cases of Vaccine Preventable Diseases, Orissa, 1980, 1985, 1993

Vaccine preventable diseases	Year		
	1980	1985	1993
Diphtheria	333	474	166
Whooping Cough	13,340	7223	6666
Measles	5132	9272	3602
Poliomyelitis	275	981	376
Tetanus	1609	2378	2671
Tuberculosis	10,198	17,589	54,710

Source: Government of India, *Health Information of India*, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi, various years.

phase. From the latest available data (for the year 1992–93) on the number of outpatient and inpatient consultations, it can be seen that infectious and

communicable diseases account for around 50 per cent of both outpatient and inpatient consultations (Government of Orissa 1998, p. 31). Along with this, it should be emphasised that conditions of anaemia, and high rates of still birth and pregnancy wastage (Government of Orissa 1998, p. 33)—the latter two factors contributing to perinatal mortality by definition—also indicate poor health and health care. Infectious and communicable diseases, as seen above, account for at least 33 per cent of deaths, as per medically certified causes of death (Table 4.2) while, non-communicable diseases become increasingly important during the second stage of health transition.

The combined effect of time lost due to illness and shortened lifespan due to early mortality, indicate the overall burden of disease and death expressed in terms of person-years (PYs) lost. The only study

Table 4.11
Plan Expenditure on National Disease Control Programmes

(in Rs million)

Programme	Year				
	1999–2000	2000–01	2001–02	2002–03	2003–04 (P)
NMEP	174.22	134.37	451.67	150.92	370.38
NTCP	8.51	21.49	-	-	25.45
NFCP	-	-	-	-	2.00
NLCP	13.09	24.72	4.80	2.40	2.40
NPCBP	14.72	10.47	10.82	10.37	18.36
NGCP	0.39	0.46	0.49	0.42	0.59

Note: NMEP: National Malaria Eradication Programme; NTCP: National Tuberculosis Control Programme; NFCP: National Filaria Control Programme; NLCP: National Leprosy Control Programme; NPCBP: National Prevention and Control of Blindness Programme; NGCP: National Goitre Control Programme

Source: Disease Surveillance Unit, Directorate of Health Services, Orissa.

(Administrative Staff College of India 1999) pertaining to this on Orissa (1992) has estimated the total PYs lost, the contribution of broad disease groups to this factor and its variations with age and sex.

According to this study (ASCI 1999), total PYs lost was 381 per 1000 population (62 per cent of which was due to early mortality and 33 per cent due to time lost on account of illness). This essentially means that each one of 10 per cent of the state's population lost an average of four years of life on account of early mortality and illness-caused time lost. The main points of the study may be summarised as follows.

- PYs lost per 1000 population in the case of females exceed that of males for the age groups 0–4, 15–44 (the reproductive span), and 60+ years. It is only in the age group 45–59 years that PYs lost in females is significantly lower than that in males.
- Group I diseases (communicable, maternal, perinatal, and nutritional deficiencies disorders) account for 61.7 per cent of total PYs lost, Group II (Non-communicable) diseases account for 22 per cent, and Group III (injuries and accidents) accounts for the remaining 16.3 per cent.
- The percentage contribution of leading causes of PYs lost due to Disease Group I, for males

and females separately, is shown in Tables 4.12 and 4.13.

4.3.5 Probability of Dying at Different Ages

The burden of disease study on Orissa did not provide estimates of the rate of PYs lost in rural and urban areas separately for want of suitable data on morbidity patterns. But the estimated probability of dying at different ages, for males and females, brings out the sharp rural–urban differences. There is not much of a male–female difference in the

probability of dying within both rural and urban areas. However, the probability at birth of dying at age 15 years and probability at age 15 years of dying at age 30 years is twice as high (for both males and females) in rural areas as compared to urban areas (Table 4.14). This suggests a higher prevalence rate, a higher case fatality rate of communicable diseases and hence much poorer access and effectiveness

Table 4.12

Per cent Distribution by Leading Causes of PYs Lost Due to Disease Group I, Males

Leading causes	% of PYs lost
Perinatal conditions	20.8
ARI	20.3
Diarrhoeal Diseases	14.8
Tuberculosis	14.5
PEM	6.2
Measles	4.5
Anaemia	3.4
Tetanus	2.8
Meningitis	2.8

Note: (i) ARI: Acute Respiratory Infections, PEM: Protein Energy Malnutrition. (ii) Leading causes shown in the table are those that result in cases of 100,000 of PYs or more.

Source: Administrative Staff College of India (1999), *Burden of Disease for Orissa*, Centre for Social Services, British Council Division, British High Commission, Hyderabad and Department of Health & Family Welfare, Government of Orissa, p. 36.



HIV/AIDS in Orissa: The Lurking Danger

The first HIV case in the state was detected in 1992. Between 1993 and 1999, a total of 452 cases have been detected, an average of 65 cases per annum during this period. There has been a jump in the number of HIV positive cases after this, with 380 in 2000 alone. Between 2001 and 2003 (three years), Orissa has reported a total of 986 cases of HIV, 166 cases of AIDS, and 16 deaths due to AIDS. The highest number of cases have been reported from Ganjam (267), followed by Cuttack (159), Koraput (54), Sambalpur (44), and Khurda (39) districts in 2003.

As per the Sentinel Surveillance data, the prevalence rate of HIV in Orissa has increased from 1.31 in 2001 to 2.51 in 2003 among the STD cases and the prevalence among antenatal women has come down

from 0.125 in 2001 to no cases in 2003, thereby putting Orissa in the category of low prevalence states. But the vulnerability to HIV/AIDS remains high, due to the large stock of migrant population from the state who often carry the virus back from their place of work. Also, the large stretch of National Highway in the state carries the risk of infection through truckers and their sexual partners who are often sex workers.

Several initiatives have been taken by the state government under the national AIDS control programme: creating awareness, preventive measures to control infection among high-risk population, blood safety measures and sentinel surveillance amongst others.

Source: Government of Orissa (2002), 'Activities of State AIDS Cell', State AIDS Cell, Bhubaneswar.

Table 4.13

Per cent Distribution by Leading Causes of PYs Lost due to Disease Group I, Females

Leading causes	% of PYs Lost
ARI	22.0
Perinatal conditions	19.8
Diarrhoeal Diseases	14.6
Tuberculosis	8.8
PEM	5.9
Maternal conditions	5.5
Measles	4.9
Anaemias	4.6

Note: (i) ARI: Acute Respiratory Infections, PEM: Protein Energy Malnutrition.
(ii) Leading causes shown in the table are those that result in cases of 100,000 of PYs or more.

Source: Administrative Staff College of India (1999), *Burden of Disease for Orissa*, Centre for Social Services, British Council Division, British High Commission, Hyderabad and Department of Health & Family Welfare, Government of Orissa, p. 37.

of health facilities, in rural Orissa than in urban Orissa.

This rural-urban divide is reflected in the estimated life expectancy at birth (LEB) for rural and urban

Table 4.14

Probability of Dying at Different Ages, Orissa

Population	15q0	30q15	15q45	10q60
Rural Male	20.27	11.38	34.01	35.21
Rural Female	21.20	12.48	30.21	37.41
Urban Male	11.08	6.81	24.64	35.25
Urban Female	11.35	5.23	20.20	31.39

Note: (i) Computed by construction of a life table based on 3 year averages of age and sex specific mortality rates as estimated by the SR (ii) 15q0 refers to the probability at birth of dying at age 15 years. Similarly, 30q15 refers to the probability at age 15 years of dying at age 30 years, and so on.

Source: Administrative Staff College of India (1999), *Burden of Disease for Orissa*, Centre for Social Services, British Council Division, British High Commission, Hyderabad and Department of Health & Family Welfare, Government of Orissa, pp. 12-14.

Orissa. Table 4.15 shows that there is significant difference in LEB between rural and urban Orissa. This is true in the case of both males and females, but the difference is greater in the case of females.

4.4 Access to and Utilisation of Public Health Care Facilities

4.4.1 Physical Access

In the case of public health care services, access is a

Physical Disability in Orissa

Physical disability is a form of deprivation that calls for public support so that the person affected by it is properly rehabilitated and can realise his/her potential. From the NSS data pertaining to 1991 on the prevalence rate of four types of disabilities, namely, locomotor, visual, hearing, and speech, the total number of physically challenged persons in Orissa is computed to be about 8.54 lakhs. This works out to about 2.5 per cent of the state's population. As per the NSSO 58th Round data for the year 2002, the percentage of disabled in Orissa is estimated to be 2.46 per cent which is the second highest amongst the states, next only to Himachal Pradesh (2.57 per cent) while, the corresponding percentage for all-India is 1.75 per cent. The above percentage of physically challenged persons in Orissa translates into a total of 9.03 lakh persons, based on the population figure of the 2001 census.

The National Programme for Rehabilitation of Persons with Disabilities (NPRPD) provides data (for the year 1999–2000) on the percentage of disabled (both physical and mental) for the districts of Orissa.

According to this, the top five districts in terms of percentage of disabled are as follows: Deogarh (1.67 per cent), Kalahandi (1.49 per cent), Jagatsinghpur (1.40 per cent), Rayagada (1.37 per cent), and Balangir (1.35 per cent). As per the NPRPD survey cited above, out of an estimated 414,974 disabled people in Orissa, 181,082 are orthopaedically handicapped, 78,756 visually handicapped, 92,155 hearing impaired, 14,096 leprosy cured, 35,423 mentally retarded, and 10,084 with cerebral palsy.

Some of the important factors contributing to the high level of disabilities are: failure of the health care system in early detection and treatment; increase in accidents at home, on agricultural farms and industrial units, as well as chemical accidents.

Given the magnitude of the problem, budgetary resources will not be sufficient for direct income transfers. Instead, cost-effective rehabilitation measures are needed in which private–public partnership can play a crucial role.

Table 4.15

Rural–Urban Differential in Life Expectancy at Birth, 1992–96

(in years)

	Total	Male	Female
Rural	56.1	56.4	55.8
Urban	64.7	62.1	66.0

Source: Government of India (1999), *Compendium of India's Fertility and Mortality Indicators 1971–1997 [Based on the Sample Registration System (SRS)]*, Registrar General of India, New Delhi.

basic requirement and an important aspect. One can distinguish between two kinds of access: physical and economic. Physical access can be either population coverage-based or area coverage-based. Economic access refers to direct cost of accessing the services.

In Orissa, the population covered per public health facility is good and the coverage is better than in nine

other major states (Table 4.16). However, the area coverage, is very poor. As of 1994, there was one medical institution for every 119 sq. km of area for the state as a whole. This means that one such institution is situated at a mean radial distance of more than 20 kms from another. This is more for inland districts like Boudh, Balangir, Deogarh, Kalahandi, Koraput, Malkangiri, Nabarangpur, Nuapada, and Rayagada while it is much less for coastal districts like Balasore, Bhadrak, Kendrapara, and Puri (Table 4.17). This is essentially due to the fact that in inland Orissa, population density is much less and settlements more scattered as compared to coastal Orissa.

Similar data for the year 2004 (Table 4.17) suggests that the area coverage of health institutions has improved perceptibly for the state as a whole, and for as many as 14 non-coastal districts. The data



Table 4.16
Population Covered per Health Facility

Sixteen Major States of India	Community Health Centres (CHCs) (population in lakhs) (as on 31 December 1994)	Primarily Health Centres (PHCs) (as on 30 September 1994)	Sub-Centres (as on 31 December 1994)
Andhra Pradesh	10.5 (16)	37,896 (15)	6,159 (15)
Bihar	5.87 (15)	33,962 (14)	5,069 (11)
Gujarat	1.52 (05)	28,517 (08)	3,715 (03)
Haryana	2.06 (09)	31,256 (12)	5,397 (13)
Himachal Pradesh	1.11 (01)	20,709 (02)	2,544 (01)
Jammu and Kashmir	1.43 (04)	18,664 (01)	3,458 (02)
Karnataka	1.61(06)	23,395 (04)	3,986 (04)
Kerala	3.96 (11)	23,588 (05)	4,204 (05)
Madhya Pradesh	2.66 (10)	43,013 (16)	4,268 (10)
Maharashtra	1.62 (07)	28,738 (09)	5,161 (12)
Orissa	1.79 (08)	26,019 (07)	4,627 (09)
Punjab	1.37 (02)	30,272 (11)	4,820 (10)
Rajasthan	1.37 (03)	23,588 (03)	4,242 (07)
Tamil Nadu	5.11(13)	25,614 (06)	4,236 (06)
Uttar Pradesh	4.50 (12)	29,735 (10)	5,532 (14)
West Bengal	5.67 (14)	31,893 (13)	6,271 (16)

Note: The above figures are provisional. Figures in parentheses indicate ranks across sixteen major states in ascending order of the population covered per each category of health facility. The national population norms for the above types of facilities are 100,000, 30,000, and 5000 for CHCs, PHCs, and Sub-Centres respectively.

Source: Government of India (1995), *Bulletin on Rural Health Statistics in India for the Quarter Ending December 1994*, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi, pp. 45–47.

for 2004 includes only allopathic institutions of the Health and Family Welfare Department while that for 1994 includes health institutions of all systems.

On the basis of village-level information contained in the Census of India's *District Statistical Handbook 1991*, the distribution of villages and population with respect to their distance from the nearest health facility has been computed for nine districts. It can be seen (Annexure Table 1) that in the five inland districts of Balangir, Kalahandi, Mayurbhanj, Phulbani, and Sundargarh, 40 per cent or more of the population have to travel more than 5 kms to reach the nearest health facility. On the other hand, physical access is relatively much better in the coastal districts of

Balasore and Puri. The problem of physical access is compounded by two other factors: poor roads as well as transport connectivity (Annexure Tables 2 and 3).

4.4.2 Economic Access

The extent of private expenditure on health care, is a good indicator of economic access (or rather lack of it) to public health care facilities, given the low level of per capita income. The available data on the same suggests that it is higher in the backward district of Kandhamal, and it is proportionately higher for lower income classes (Table 4.18).

It is thus not surprising to find that poor physical and economic access affect the utilisation of public

Table 4.17

Geographical Density of Government Medical Institutions (All Systems), 1994 and 2004

Districts	Area/MI (1994) (all systems)	Area/MI (2004) (only allopathic institutions of Health and Family Welfare Department)
Angul	155	148
Balasore	60	44
Bargarh	121	99
Bhadrak	62	42
Boudh	183	194
Balangir	142	110
Cuttack	58	49
Deogarh	171	245
Dhenkanal	109	93
Gajapati	116	144
Ganjam	93	100
Jagatsinghpur	46	36
Jajpur	70	41
Jharsuguda	100	92
Kalahandi	130	128
Kandhamal	86	146
Kendrapara	53	48
Keonjhar	109	99
Khurda	53	37
Koraput	171	135
Malkangiri	291	148
Mayurbhanj	97	91
Nuapada	179	167
Nayagarh	113	78
Nabarangpur	132	106
Puri	55	54
Rayagada	172	144
Sambalpur	94	148
Sonepur	109	90
Sundargarh	129	118
Orissa	119	92

Note: Area/MI refers to geographical area (in sq km) per medical institution.

Source: Computed from data in Orissa Voluntary Health Association (1995), *Status of Health in Orissa 1995*, Prepared by Almas Ali and Shikha Nayak, Information and Documentation Cell, Bhubaneswar.

health care facilities. The number of outpatient consultations per head of population per year, and the number of new inpatients per bed per year, are not only low in absolute terms, but have also declined over a period of time (Table 4.19).

4.5 Inter-district Disparities

The subsections below highlight the inter-district disparities in certain key reproductive and child health indicators. They are based on the district-level data from the Reproductive and Child Health Project Rapid Household Survey conducted in 1999.

4.5.1 Age at Marriage

Early marriage of girls, especially below 18 years, may result in greater number of births, high infant mortality, and pregnancy complications. In Orissa, almost 30 per cent of the girls get married before 18 years of age (Table 4.20), but there is a great deal of inter-district variation (CV: 46.38). Thus, while in the backward districts of Balangir, Boudh, Kalahandi, Malkangiri, Koraput, and Nabarangpur, more than 50 per cent of the girls get married before the age of 18, less than 15 per cent of the girls do so in the coastal districts of Cuttack, Jagatsinghpur, Jajpur, and Puri (see Map 4.1).

4.5.2 Antenatal Care

The coverage of antenatal care is rather impressive: 73.4 per cent of women had received some (though not all) antenatal care. However, there was not much inter-district variation (CV: 13.17) and in 28 of the 30 districts, more than 60 per cent of pregnant women had received some ante-natal care (Table 4.21).

4.5.3 Natal Care: Professional Assistance and Place of Delivery

Care during delivery is mainly a function of the place of delivery. Delivery at a health facility ensures full professional care. For the state as a whole, such institutional deliveries constituted only 21.9 per cent of all deliveries. There is considerable inter-district variation.



Table 4.18

Income Class-wise Average Total Income (ATI) and Average Health

Variables	Kandhamal Rural		Kandhamal Urban		Angul Rural		Angul Urban		Cuttack Rural Salipur		Cuttack Urban Kendrapara	
	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI	<u>N</u> =Freq ATI or AHE in Rs.	AHE as % of ATI
≤2000, No. of Households (N)	36		11		29		0		6		12	
Average Total Income (ATI) in Rs	1,517		1,282		1,628		0		8,344		1,271	
Average Health Expenditure (AHE) in Rs	309	20.38	165	12.84	537	33.00	0	0.00	925	11.09	411	32.36
>2000 and ≤5000, No. of Households (N)	257		44		197		32		60		37	
Average Total Income (ATI) in Rs	3,290		3,546		3,434		3,565		3,627		3,716	
Average Health Expenditure (AHE) in Rs	433	13.15	556	15.67	553	16.11	613	17.20	239	6.58	717	19.30
>5000 and ≤10,000, No. of Households (N)	75		50		106		36		57		35	
Average Total Income (ATI) in Rs	6,972		7,631		7,002		7,497		7,272		7,636	
Average Health Expenditure (AHE) in Rs	791	11.35	893	11.70	842	12.03	1,061	14.15	1,853	25.49	733	9.60
>10,000 and ≤15,000, No. of Households (N)	23		59		19		29		16		23	
Average Total Income (ATI) in Rs	12,176		12,526		12,464		12,283		12,027		12,227	
Average Health Expenditure (AHE) in Rs	697	5.73	704	5.62	762	6.12	1,447	11.78	1,803	14.99	814	6.65
>15,000 and ≤25,000, No. of Households (N)	12		22		18		40		18		32	
Average Total Income (ATI) in Rs	19,162		18,143		19,562		19,606		18,991		19,634	
Average Health Expenditure (AHE) in Rs	729	3.81	681	3.76	672	3.44	721	3.68	1,489	7.84	876	4.46
>25,000 and ≤50,000, No. of Households (N)	5		14		9		35		8		45	
Average Total Income (ATI) in Rs	29,528		35,830		31,893		34,846		28,303		36,463	
Average Health Expenditure (AHE) in Rs	2,194	7.43	1,029	2.87	581	1.82	2,550	7.32	1,146	4.05	622	1.71
>50,000, No. of Households (N)	1		0		3		18		0		14	
Average Total Income (ATI) in Rs	51,600		0		119,993		100,283		0		76,202	
Average Health Expenditure (AHE) in Rs	600	1.16	0	0.00	395	0.33	7276	7.25	0	0.00	564	0.74
All Income Class, No. of Households (N)	409		200		381		190		165		198	
Average Total Income (ATI) in Rs	5,214		10,957		7,091		23,943		8,745		20,390	
Average Health Expenditure (AHE) in Rs	533	10.22	709	6.47	648	9.14	1,836	7.67	1,153	13.19	706	3.46

Note: N=Frequency denotes Total Number of Households in that category and is underlined; ATI=Average Total Income and AHE=Average Health Expenditure. Income classes and expenditure are in Indian Rupees (Rs) and are rounded off to the nearest integer.

Source: Sakti Padhi and Srijit Mishra (2000), 'Premature Mortality, Health Status and Public Health Care Facilities in Orissa: A Case Study in Accessibility and Utilisation', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, p. 156.

Table 4.19
Indicators of Utilisation of Government Health Facility

Year	No. of inpatients (new) per bed per year	No. of outpatients consultations per head of population per year
1983-84	50.1	1.32
1984-85	50.3	1.32
1985-86	45.6	1.24
1986-87	45.2	1.16
1987-88	47.8	1.03
1988-89	47.8	0.97
1989-90	48.2	0.91
1990-91	50.3	0.88
1991-92	53.5	0.91
1992-93	49.4	0.85
1993-94	50.2	0.85
1994-95	48.8	0.83
1995-96	48.3	0.81
1996-97	48.5	0.80
1997-98	48.1	0.78

Source: Computed from data on number of inpatients and total no. of outpatients in Government of Orissa (1998), *Health Statistics of Orissa*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar.

Table 4.20
Distribution of Districts by Percentage of Girls Married at Age Less than 18 years (for married since 1 January 1996)

Per cent of girls	No. of districts
< 20	8
20-40	10
40-60	10
>60	2
Mean	25.88
SD	16.64
CV	46.38

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.21
Distribution of Districts by Percentage of Pregnant Women who received some (but not all) Antenatal Care (3 check-ups) and/or 2 TT injections and/or Iron and Folic Acid tablets (for eligible women with live/still births since 1 January 1996)

Per cent of women	No. of districts
< 20	Nil
20-40	Nil
40-60	2
> 60	28
Mean	73.40
SD	9.67
CV	13.17

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

4.5.4 Post-natal Care

Access to post-natal care seems to be poor in Orissa. The percentage of women visited by ANM within two weeks of delivery was only about 18. There is a fairly significant inter-district variation in this respect around the low mean (CV: 34.53, Table 4.25). The 20 districts with less than 20 per cent of women having been visited by ANM within two weeks of delivery include, not only the backward districts in the KBK (Kalahandi, Balangir, and Koraput) region, but also, surprisingly, a number of coastal districts and the northern districts. In the four coastal districts and four western districts (see Map 4.4), this figure is 20-40 per cent.

4.5.5 Pregnancy and Delivery Related Complications

The percentage of women, who develop complications related to pregnancy and delivery, range from one-third (delivery complications) to nearly three-fourth (pregnancy complications). There is a great deal of inter-district disparity in both abortion complications (CV: 36.13) and delivery complications (CV: 41.15) (Table 4.26).



Table 4.22

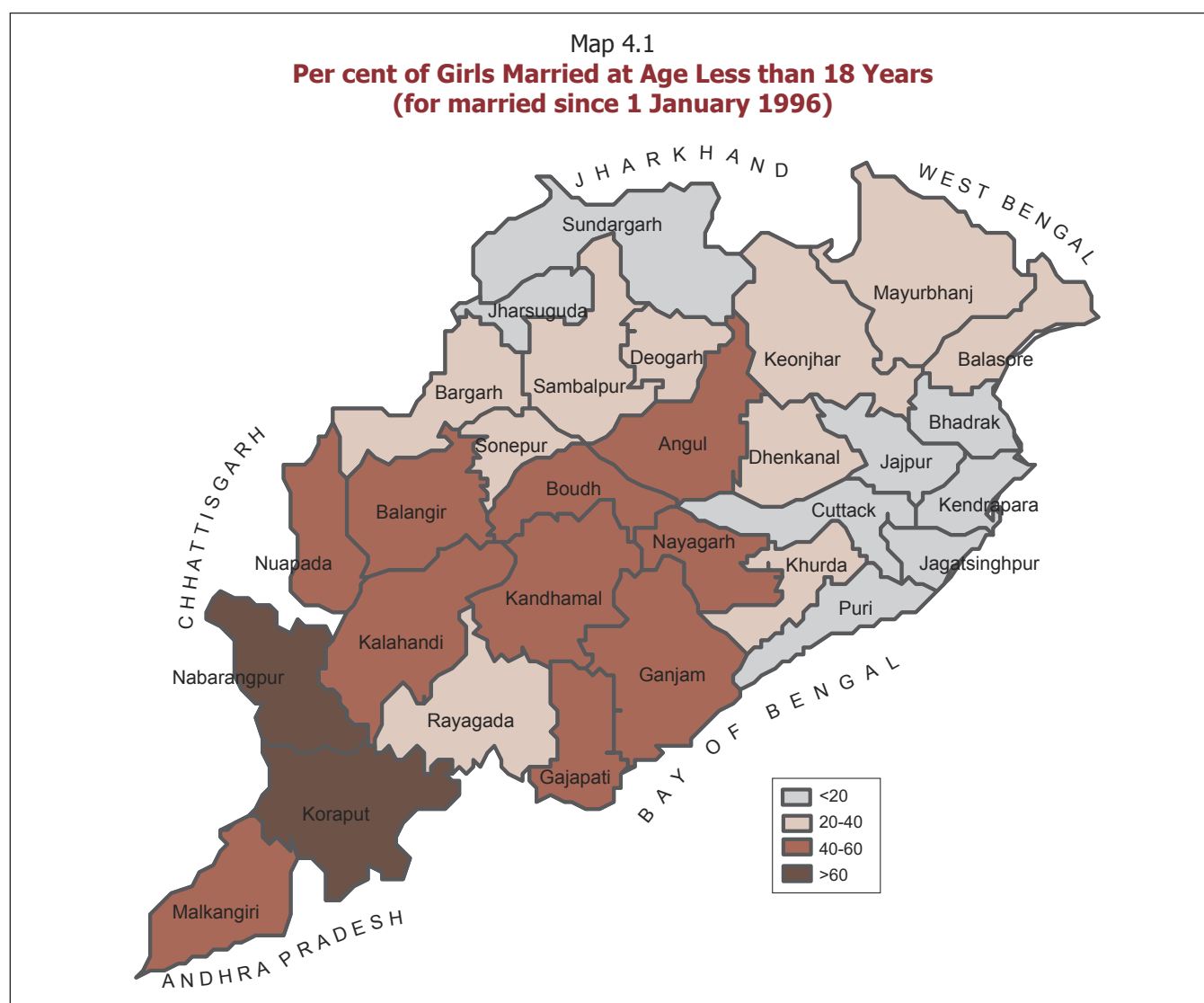
Distribution of Districts by Percentage of Pregnant Women who received no Antenatal Care (for eligible women with live/still births since 1 January 1996)

Per cent of women	No. of districts
< 20	7
20–40	21
40–60	2
>60	0
Mean	26.50
SD	9.67
CV	36.50

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

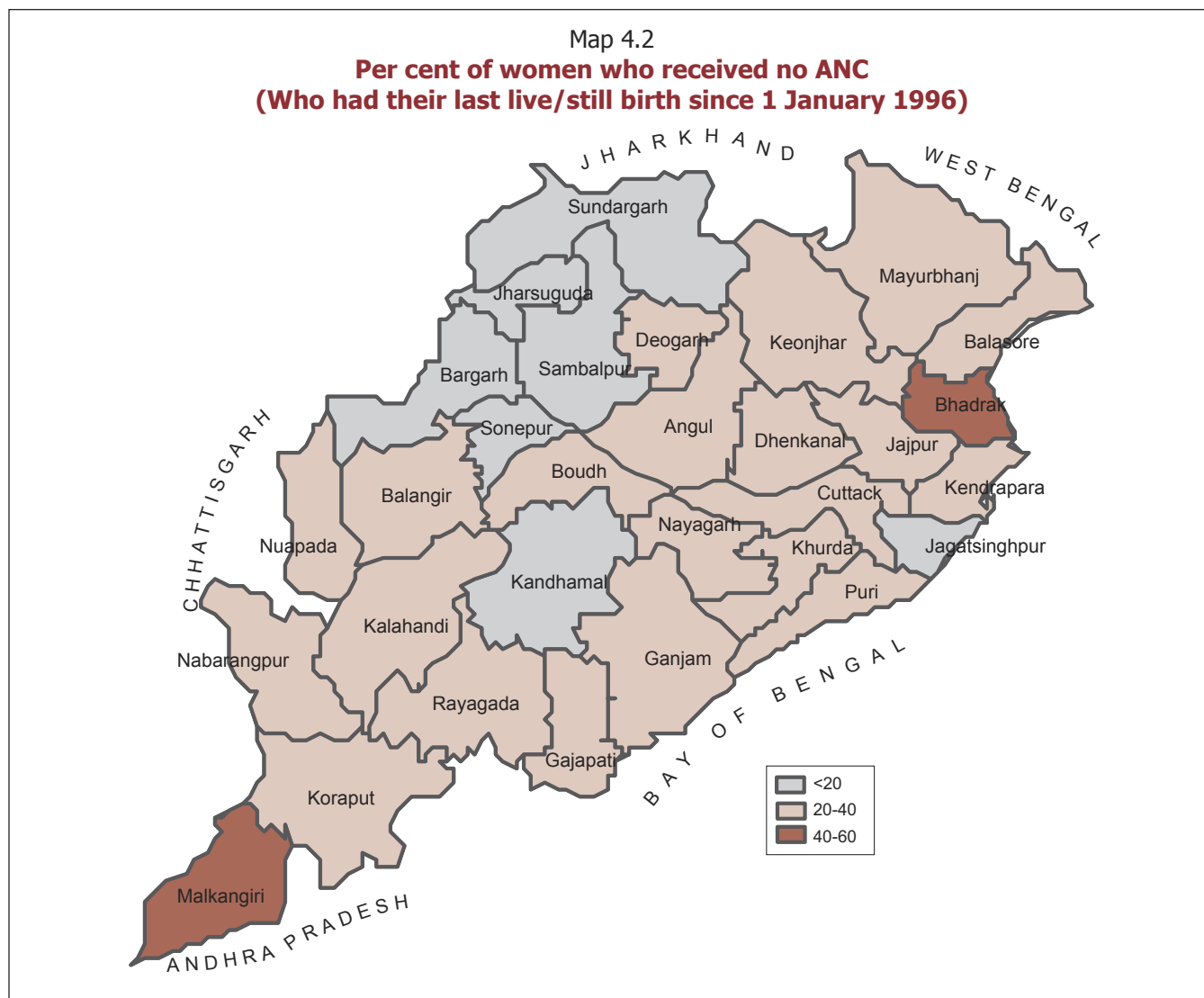
In eight districts, less than one-third of the women are affected by abortion complications while, in as many as 11 districts, more than half the women are affected. As regards delivery complications, less than one-third of the women are affected in 15 districts, while, in seven districts nearly half or more are affected by it.

The percentage of children receiving individual vaccines is greater than the percentage of children who are completely immunised. Thus, three-fourths of the children have been covered by individual vaccines, except the measles vaccine (Table 4.28). However, the coverage of Vitamin A remains quite



Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Map 4.2
Per cent of women who received no ANC
(Who had their last live/still birth since 1 January 1996)



Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.23
Distribution of Districts by Percentage of Institutional Deliveries

Per cent of institutional deliveries	No. of districts
< 20	16
20-40	12
40-60	2
>60	0
Mean	21.92
SD	11.59
CV	52.89

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.24
Distribution of Districts by Percentage of Safe Deliveries (i.e. institutional deliveries plus deliveries at home assisted by doctors/nurse/TBA)

Per cent of safe deliveries	No. of districts
< 20	2
20-40	17
40-60	9
> 60	2
Mean	36.46
SD	15.23
CV	41.76

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.



Table 4.25

Distribution of Districts by Percentage of Women visited by ANM within Two Weeks of Delivery

Per cent of women	No. of districts
< 20	20
20–40	10
40–60	0
> 60	0
Mean	17.90
SD	6.18
CV	34.53

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

poor. There is very little inter-district disparity in the coverage of individual vaccines (Table 4.28).

4.5.6 Incidence and Treatment of Diarrhoea among Children

The incidence of diarrhoea (for a two month recall period) among children is fairly high at 30.28 per cent (Table 4.29). In as many as 25 districts, the incidence figure is between 20 to 40 per cent. The inter-district variation is fairly large as well (CV: 32.12). As regards the treatment of diarrhoea with ORS, nearly 25 per cent of children in the state are treated with ORS, though there is considerable inter-district variation in this respect (CV: 43.51, Table 4.30).

4.6 Social Disparity in Health Status: Tribal Health

The tribal population is the most disadvantaged social group in Orissa. A clear manifestation of this is the distinctly higher incidence of poverty among the tribal population as compared to the general population or even when compared to the Scheduled Caste population.

Unfortunately, no separate data on morbidity rates, in the aggregate or for major acute/chronic diseases, is available for the tribal population. However, there are some indirect indicators of health status such as, premature mortality, immunisation coverage, utilisation of health facilities, nutritional status of women and children and maternal health. Separate data on these is available for the tribal population from the National Family Health Survey (NFHS)-2 (pertaining to the year 1998–99), and the same is used in this report.

4.6.1 Premature Mortality

The infant mortality rate and the under-five mortality rate for Orissa's tribal population, as compared to the state's population as a whole, is higher by 10.3 per cent and 19.6 per cent, respectively. The child mortality rate is higher by 52.7 per cent.

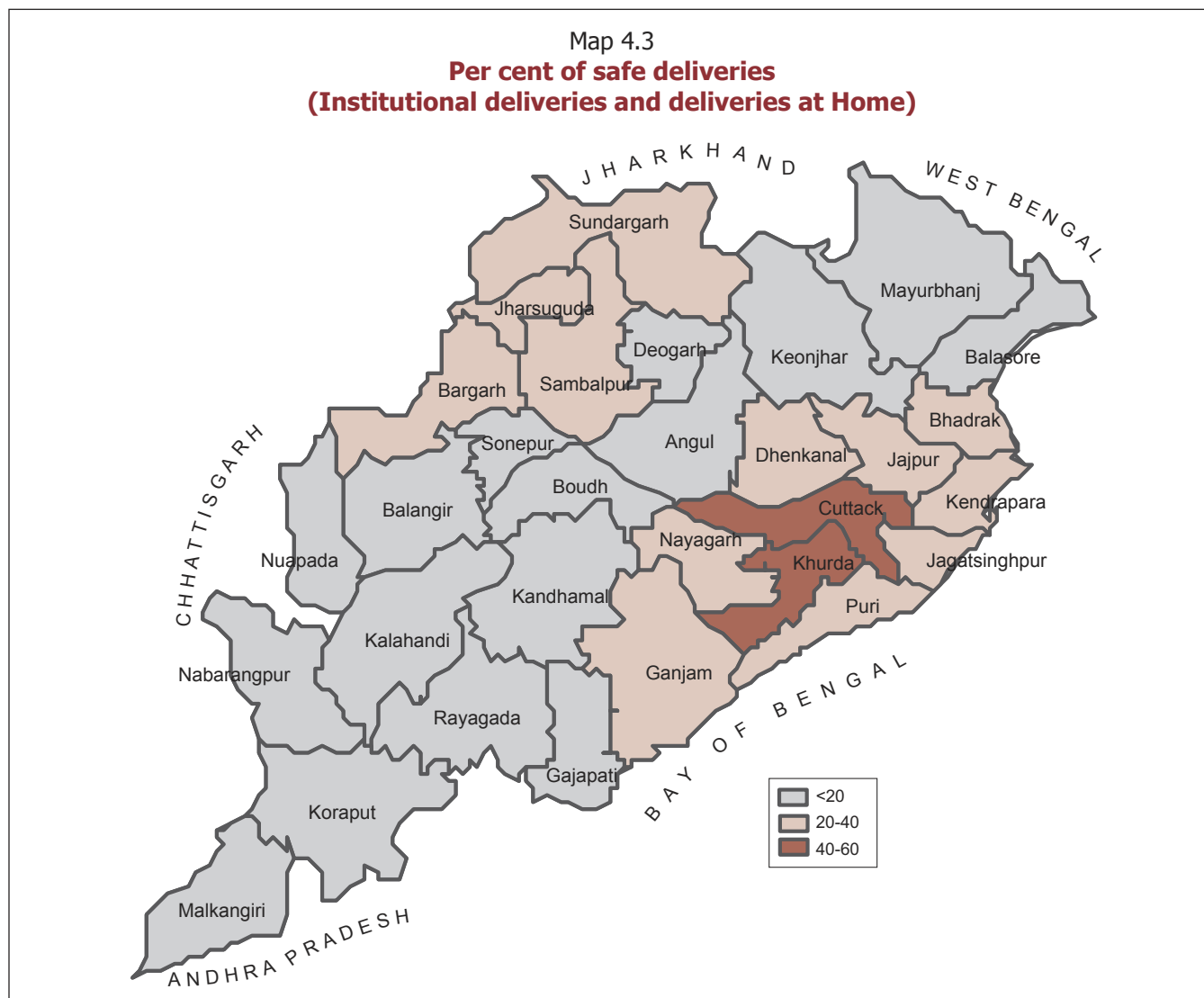
Table 4.26

Distribution of Districts by Percentage of Women (who had their last pregnancy since 1 January 1996) who Developed Pregnancy Related Complications

Per cent of women	Abortion complications	Pregnancy complications	Delivery complications	Post-delivery complications
< 20	2	0	3	0
20–40	8	0	16	0
40–60	15	3	8	15
> 60	6	27	1	15
Mean	44.86	72.19	33.27	62.07
SD	16.21	9.21	13.69	9.96
CV	36.13	12.76	41.15	16.05

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Map 4.3
Per cent of safe deliveries
(Institutional deliveries and deliveries at Home)



Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.27
Distribution of Districts by Percentage of Children age 12–36 months (relates to two children born since 1 January 1996) Completely Immunised, Received No Vaccinations, and Partially Immunised (BCG+3DPT+3POLIO+MEASLES)

Per cent of children	Completely immunised (no. of districts)	Received no vaccinations (no. of districts)	Partially immunised (no. of districts)
< 20	Nil	30	3
20–40	2	Nil	23
40–60	14	Nil	3
> 60	14	Nil	1
Mean	59.45	8.49	32.06
SD	11.32	4.30	9.23
CV	19.04	50.67	28.79

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi

Map 4.4
Per cent of women visited by ANM within two weeks of delivery



Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.28
Distribution of Districts by Percentage of Children of Age 12–36 Months (relates to two children born since 1 January 1996) who Received BCG/3DPT/3Polio/Measles/Vitamin A

Per cent of children	BCG	Three injections of DPT	Three doses of polio	Measles	At least one dose of Vitamin A
< 40	0	0	0	1	15
40–60	0	1	2	6	12
60–80	8	18	17	20	3
> 80	22	11	11	3	0
Mean	83.01	75.99	77.25	65.79	41.63
SD	6.32	9.92	9.81	10.89	10.75
CV	7.62	13.05	12.70	16.55	25.83

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi

Table 4.29
Distribution of Districts by Percentage of Children Suffering from Diarrhoea (2 months prior to survey)

Per cent of children	No. of districts
< 20	3
20–40	25
40–60	1
> 60	1
Mean	30.28
SD	9.73
CV	32.12

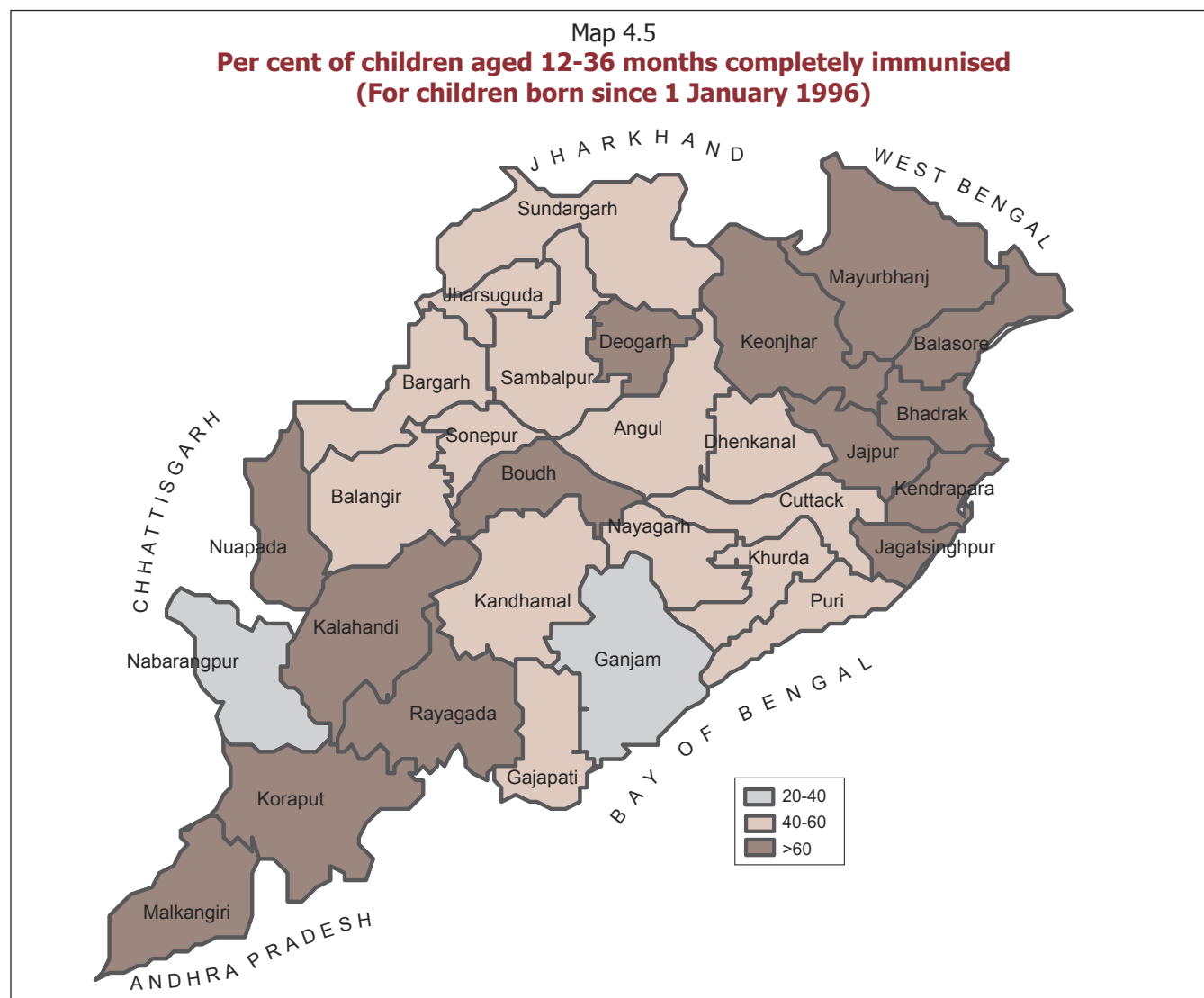
Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Table 4.30
Distribution of Districts by Percentage of Children Treated with ORS (2 months prior to survey)

Per cent of children	No. of districts
< 20	11
20–40	18
40–60	0
> 60	1
Mean	24.95
SD	10.85
CV	43.51

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

Map 4.5
Per cent of children aged 12-36 months completely immunised (For children born since 1 January 1996)



Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

4.6.2 Immunisation Coverage

The immunisation coverage is the poorest in the case of tribal population when compared to other social groups and the aggregate population. Only 26.4 per cent of the tribal children are completely immunised against all vaccine-preventable diseases while 18.2 per cent did not receive any vaccine at all (Table 4.31). About 55.4 per cent of children are only partially immunised.

Table 4.31
Childhood Vaccination¹

Social group	Completely immunised ²	Not immunised at all
Scheduled Tribe	26.4	18.2
Scheduled Caste	44.5	8.6
Other Backward Class	46.5	8.1
Other	49.3	5.3
Total	43.7	9.4

Notes: ¹ Percentage of children aged 12–23 months who received specific vaccination at any time before the interview (according to the vaccination card or the mother).² BCG, measles, and the three doses each of DPT and polio vaccination (excluding polio 0). Here polio 0 denotes polio vaccination at the time of birth as per the NFHS-2 data.

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa, IIPS, Mumbai.*

4.6.3 Child Health

As per *NFHS-2*, over a reference period of two weeks, the percentage of children having three common childhood diseases (respiratory infections, diarrhoea, and fever) was found to be surprisingly lower among the tribal population when compared to the population as a whole, or when compared to other social groups (such as Scheduled Caste and other backward population).

However, there is less knowledge about diarrhoea care (Table 4.32) and the percentage of diarrhoea cases taken for treatment to a health facility or provider is relatively very low (Table 4.33). Consequently, the percentage of cases not given oral rehydration therapy or any other treatment whatsoever is relatively very high (Table 4.33).

Table 4.32
Knowledge about Diarrhoea Care*

Social group	Per cent who know about ORS packets	Per cent who know two or more signs for medical treatment of diarrhoea
Scheduled Tribe	53.7	36.4
Scheduled Caste	76.5	41.5
Other Backward Class	76.8	47.1
Other	82.1	50.9
Total	72.9	44.4

* Among mothers with births during the three years preceding the survey.

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa, IIPS, Mumbai.*

Table 4.33
Treatment of Diarrhoea*

Social group	Taken to health facility or provider	No treatment
Scheduled Tribe	21.2	47.6
Scheduled Caste	48.1	37.4
Other Backward Class	55.1	30.2
Other	53.8	27.4
Total	46.9	34.5

* Among children under age 3 years who had diarrhoea in the past two weeks.

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa, IIPS, Mumbai.*

The nutritional status of tribal children is apparently not much worse when compared to those from other social groups and the population as a whole. The incidence of anaemia among children is, however, much higher among the tribal population.

4.6.4 Women's Health

The nutritional status of tribal women is similar to that of the tribal children and is not much worse when compared to the general population or to women belonging to other disadvantaged social groups (Scheduled Caste and Other Backward Castes). However, the incidence of anaemia amongst tribal

women is significantly higher than that for other social groups (Table 4.34).

There are two indicators of maternal health—extent of antenatal check-up and delivery care. Around 37 per cent of tribal women did not have any antenatal check-up (Table 4.35). This is much higher than the figure for the population as a whole (20.3 per cent) as well as for other social groups. The percentage of tribal women who had undergone professional antenatal check-up was also much lower, as shown (Table 4.35).

While institutional delivery is low in the case of Orissa (22.7 per cent), it is even lower in the case of tribal women (8.7 per cent). Similarly, professional

assistance during delivery in the case of tribal women is only 36.1 per cent as against 55.6 per cent for the population as a whole.

4.7 Trend in and Pattern of Health Expenditure

Public health expenditure has a direct bearing on the supply of recurrent inputs such as drugs and vaccines and maintenance of equipment and buildings. The trend in health expenditure relative to aggregate budgetary expenditure and the state gross domestic product (GSDP) is examined below in Table 4.36.

Table 4.34
Anaemia among Women*

Social group	Per cent of women with any anaemia
Scheduled Tribe	74.7
Scheduled Caste	66.3
Other Backward Class	61.3
Other	54.4

* Percentage of ever-married women classified as having iron-deficiency anaemia

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa, IIPS, Mumbai.*

Table 4.35
Antenatal Check-up

(in per cent)

Social group	No ante-natal check-up	Professional antenatal check-up*
Scheduled Tribe	37.0	40.7
Scheduled Caste	17.7	69.3
Other Backward Class	14.6	73.0
Other	14.6	77.1
Total	20.3	66.1

* Per cent of births during three years preceding the survey.

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa, IIPS, Mumbai.*

Table 4.36
Extent of Public Health Expenditure

Year	Health Budget as per cent of State Budget	Health Budget as per cent of GSDP
1991–92	4.60	1.23
1992–93	4.51	1.15
1993–94	4.57	1.11
1994–95	4.66	1.00
1995–96	4.72	1.07
1996–97	4.59	1.02
1997–98	4.57	1.08
1998–99	4.49	1.12

Note: Three-year moving averages centred on the years shown.

Source: (i) Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years;
(ii) Government of Orissa, *Estimates of District Domestic Product*, Directorate of Economics and Statistics, Bhubaneswar.

Table 4.36 indicates a squeeze on budgetary allocation to the health sector through the second half of the 1990s. The health budget as a percentage of GSDP steadily declined during the first half of the 1990s. It gained some ground thereafter but the level of the early 1990s has not been reached.

Qualitatively, the allocation of health expenditure to different tiers of the health care delivery system is more important than the trend in the aggregate amount. The available data on this is presented in Table 4.37.

It is rather disturbing to find that the primary and secondary tiers each account for around 20 per

Table 4.37

Distribution of Budget Expenditure: Primary, Secondary, and Tertiary Levels (Per cent of State Health Budget), 1991–92 to 1995–96

Year	Primary	Secondary	Tertiary
1991–92	21	21	58
1992–93	19	22	59
1993–94	22	20	58
1994–95	21	20	59
1995–96	22	19	59

Source: World Bank (1998), *Orissa Health Systems Development Project*, Project Appraisal Document Report No. 17653-IN, India, p. 40.

cent of the budget allocation while the tertiary level claims 60 per cent. What this means is that primary health care and first referral services (including family welfare and rural health services delivered through primary health centres) are under-funded. This results in a shortage of drugs, equipment and other materials in the primary and secondary level of institutions. This, in turn, results in overburdening the (costlier) tertiary level services, as patients seek treatment from tertiary institutions which could easily have been given at the primary or secondary levels.

4.8 Policy Implications

The Government of Orissa has put in place a comprehensive and integrated medium-term health policy. Under this, several strategies and action points for the development of the health sector have been spelt out (Government of Orissa 2002f). The important medium and long-term goals are set out in Box 4.9.

A major thrust of the policy is to achieve equity in health care by reducing disparities on four counts: regional; the poor and disadvantaged social groups (STs and SCs); gender; and vulnerable groups (persons with disabilities and elderly persons). The avowed approach aims to have a participatory, public health and primary health care orientation.

However, it needs to be pointed out here that while time-bound targeted reductions in IMR and MMR have been spelt out, the specific requirements of these policy goals (such as the required increase in the coverage of antenatal care and of institutional deliveries, etc.) and their organisational and financial implications have not been spelt out.

While the thrust of the state's New Health Policy is, broadly speaking, in the right direction, a few additional policy recommendations are in order. These are as follows:

- (i) Almost 75 per cent of the *incremental budgetary* allocation to the health sector should be devoted to the primary and secondary tiers.
- (ii) In remote and tribal districts, where minimum health services are not available because of poor functioning of public health care institutions, an attempt should be made to involve Panchayati Raj Institutions (PRIs), local NGOs, and Self-help Groups in managing such institutions.
- (iii) There should be a concerted effort to increase institutional/safe deliveries—which are known to have a major bearing on both infant and maternal mortality—at a faster rate. This should be particularly targeted at the tribal population, amongst whom the prevalence of institutional deliveries is lower than even the low state average.
- (iv) Malaria is the most critical public health problem in the state. To deal with this, vector control programmes need to be intensified.
- (v) The child immunisation drive needs to be intensified, as only 60 per cent of the children in the age group 12–36 months are completely immunised. An attempt should be made to increase this to 80 per cent by 2010.

Box 4.9
Major Goals of the New Health Policy

S. No.	Issue	Timeframe
1.	Eradication of polio and yaws	2005
2.	Eliminate leprosy	2005
3.	Eliminate lymphatic filariasis	2015
4.	Achieve zero level growth of HIV/AIDS	2007
5.	Reduce mortality by 50 per cent on account of TB, malaria, and other vector and water-borne diseases	2010
6.	Reduce prevalence of blindness to 0.5 per cent	2010
7.	Reduce IMR to 45/1000 and MMR to 100/100,000	2010
8.	Increase utilisation of public health facilities from the current level of <20 per cent to >75 per cent	2010
9.	Establish an integrated system of disease surveillance, national accounts, and health statistics	2005
10.	Increase share of Central grants to constitute at least 25 per cent of total health spending	2010
11.	Increase state sector health spending from 3 per cent to 5 per cent of budget	2005
12.	Further increase state sector health spending to 6 per cent of budget	2010
13.	Increase extra-budgetary health allocation and spending from alternative sources	2005
14.	Establish networks between public, voluntary and private sectors at state, district and local level	2005
15.	Introduce mechanisms for community feedback and participation	2005
16.	Incremental measurable achievement of equity goals	2005
17.	Establish training and mechanisms for involvement of Panchayati Raj Institutions at district and Gram/ward Panchayati levels.	2005
18.	Create adequate infrastructure for the public health system with maintenance and management systems	2010



CHAPTER 5 **School Education**





School Education

Education is both an indicator and an instrument of development, and its attainment is a major factor behind the accumulation of human capital. Education increases labour productivity in both urban and rural sectors and has long been identified as one of the most important determinants of economic growth. The economic returns from investment in education are typically high, for both individual and society, due to increases in both cognitive and non-cognitive skills (Schultz 1961; Colclough 1982; Vaizey 1962; Weisbrod 1962).

Growth of conventional inputs—physical capital, labour, and land—is essential but not sufficient for increasing national output. The other important input is human capital or skilled manpower. The percentage of the growth rate that can be explained by education is 11.1 per cent in Asia, 17.2 per cent in Africa, and 8.6 per cent in North America and Europe. The social return from education depends on the educational level: the rate of return from secondary education (16 per cent) is higher than that from university level (12 per cent) (Psacharopoulos 1988).

In some cases, cross-national data show no relationship between human capital (attributable to the rising educational attainment of the labour force) on the one hand and the rate of growth of output per worker on the other (Pritchett 2001). The development impact of education varies widely across countries and has fallen short of expectations for various reasons. These include: (i) a perverse institutional/ governance environment due to which accumulation of educational capital has led to a lowering of economic growth (as newly created educational capital may have gone into rent seeking and directly unproductive/ wasteful activities), (ii) a rapid fall in marginal returns from education (as

the supply of educated labour expanded while its demand remained stagnant), and (iii) non-accretion of human capital by years of schooling (due to very low educational quality). These three phenomena vary from country to country, and hence the impact of education on growth has not been the same in all countries.

In spite of the beneficial impact, many societies are not able to accord due importance to the development of education in their overall development efforts due to a lack of strong political will and/ or lack of physical, human, and financial resources.

5.1 Development of Education in Orissa before Independence

The earliest epigraphic reference to education in Orissa is seen in the *Hatigumpha* inscription of Kharvela, which narrates how the young prince received instructions in coinage and economics, accountancy, law, statecraft, official correspondence, as well as in music and welfare during that time. Subsequent records from the 4th century AD onwards describe the support extended to teachers and scholars by the rulers. At the same time, community halls or the *Bhagavat Tung* in villages were largely centres of non-formal education.

With the coming of Islam in the 17th century, scholars were attached to mosques for instruction in Islamic religion (Government of Orissa 2000b). At present, there are 140 *Madrasas*, including 88 lower primary schools (class I–III), 41 primary schools (class I–V), and eight upper primary schools (class I–VII). Although Orissa came under the British Administration since 1803, the education system in Orissa was more backward than in any other province of equal importance. In 1866, Orissa had 77 schools of all grades with 3,536 students. After 1866, efforts

were made to develop village *pathshalas/ chatsalis*, to bring them up to a prescribed standard and maintain them. The village *chatsalis* were subsidised by monthly grants (Samal 1989).

In order to solve the shortage of well-trained teachers as well as to improve (and consolidate) primary education, training schools were established to train teachers. For remodelling the curriculum of the primary school, vernacular education was introduced gradually from 1902 under the Kindergarten system. In spite of all these steps, primary education did not make any substantial progress in the state, with as many as 97 per cent of the Oriyas being illiterate in 1905 (*Utkal Dipika*, 20 July 1905).

The progress of secondary education was also very low. By 1905, there were only 12 high schools with 2,598 students and 84 middle schools with 4,728 students. The setting up of Ravenshaw College in 1868 saw the beginning of higher Western education in Orissa. Female education was introduced in Orissa under the initiative of missionaries. Special girls' schools were established by the missionaries and the government to encourage the spread of education amongst girls.

On the whole, the status of education in Orissa in 1905 was not satisfactory both from the quantitative and qualitative points of view. This was mainly due to the fact that attempts by the government to educate people in Orissa after 1866 were half-hearted and hesitant (Samal 1989). The net outcome of three decades of experimentation in the field of primary education was not noteworthy. In 1936, there was only 7 percent literacy in Orissa whereas the percentage literacy in British India was 12.

On 1 April 1936, Orissa became a separate province comprising seven districts. In 1947–48, the entire state had only 6,814 primary schools with an enrolment of 2.55 lakhs, 286 Middle English (ME) schools with 32,000 enrolments and 106 secondary schools with 15,000 enrolments. The total number

of colleges in Arts, Science, and Commerce was only 12 with an enrolment of 4104. The Utkal University foundation was laid in 1943. Such a dismal state of education could be attributed to several factors, namely indifference of the colonial government to educating the masses, paucity of funds, and deep-rooted poverty of the people (Samal 1989).

5.2 Post-independence Orissa: Educational Policies

Immediately after independence, the educational policy of the Government of Orissa changed radically. The government's attention shifted from the elite to the masses. Educational facilities expanded rapidly, with a remarkable rise in the enrolment of students (Samal, 1999).

The Constitution of India, the National Policies on Education [1968, and 1986 (amended in 1992)] and the Five-Year Plans have laid special emphasis on the role of education in development. Article 45 of the Constitution of India envisaged free and compulsory education for all children until the age of 14 years, which was to be achieved within 10 years from the commencement of the Constitution. Article 29 of the Constitution provided additional safeguards to ensure equity of access to education irrespective of language or caste. The 93rd Constitutional Amendment passed by the Lok Sabha on 28 November 2001, after much deliberation, made education a fundamental right within the meaning of Article 21A of the Constitution of India. The 42nd Amendment of the Constitution of India (1976), bringing education under the ambit of the Concurrent list, required a new sharing of responsibility between the Union government and the states, making education a joint responsibility of the centre and states. The National Policy on Education (NPE), approved by the Parliament in 1986, and modified in 1992, envisaged free and compulsory education for all children until the age of 14 years before the onset of the 21st century. To this end, a number of programmes were launched in the last two decades.

The Government of Orissa formulated its goals for the education sector (Government of Orissa 1995a). They were as follows: (i) universalisation of elementary education and five years of primary education by 2007, and eight years of elementary education by 2010; (ii) universal literacy—literacy rate of at least 88 per cent—by 2011 and total literacy by 2015; (iii) functional skill development in adult education; (iv) modernisation of technical education; (v) consolidation of higher education by focusing on quality and standards in higher education; and (vi) language development to foster unity and integrity of the country amidst diversity.

The Das Committee Report in Orissa laid special emphasis on elementary education and intended to cover three major aspects in this context: (a) universal access and enrolment, (b) universal retention of children up to 14 years of age, and (c) substantial improvement in the quality of education to enable all children to achieve essential levels of learning (Government of Orissa 1997, 2001a).

The Vision 2020 Report (Government of Orissa 2002e) visualises Orissa as one of the most prosperous and developed states in India by the year 2020. In order to achieve this, attempts to provide for a world-class education system in the state have to be made. A world-class education can only be driven by values, comprising of personal values (such as self-esteem, self-actualisation, work ethic), community values (such as equity and cooperation) and universal values (such as human rights, tolerance, non-violence, and peace) (Patnaik 2004).

5.3 Literacy: Regional, Gender, and Social Disparity

Literacy is a useful indicator of the relative development of a society. More often, it is found that illiteracy is associated with the socio-economic ills of poverty or disease. It is widely realised that societies with a higher percentage of literates have higher levels of development.

Literacy and education help to improve skills, and thereby have a significant impact on the growth of productivity. Modern technology is easily adopted by the educated. However, the rate of return is highest in primary education, followed by secondary and then university education. In India, the social rate of return is 29.3 per cent in primary education compared to 10.8 per cent in university level education (Tilak 1994). Literacy and educational attainment positively affect efficiency in resource allocation, leading to higher income and a more equal distribution of such income. Since education has a strong impact on the individual's earnings, the net effect of the expenditure on schooling has been a reduction in the dispersion of earnings and hence a more even distribution of income (Psacharopoulos and Woodhall 1995). However, the equity effect depends on the level of expansion of schooling. Basic and primary education have the highest impact on distribution of income favourable to equity, while the equity impact of the expansion of post-graduates education may well be negative. Thus, there is greater need for the expansion of primary and secondary education in Orissa.

The overall literacy rate in Orissa has increased by about 15 percentage points between 1991 and 2001, from 49.09 per cent to 63.61 per cent. This increase is roughly the same for India and for states with comparable levels of literacy in 1991. However, as per the 2001 Census, Orissa still ranks a lowly 24th among 35 states/Union Territories,

5.3.1 Regional Disparity (Rural-Urban/Inter-district)

There exists significant gender and regional disparities in the state (Table 5.1). In the KBK (the undivided Kalahandi, Balangir, and Koraput) districts, excluding Balangir and Sonepur, the literacy rate is less than 50 per cent, while in other tribal districts such as Keonjhar and Mayurbhanj, it is above 50 per cent. However, in the tribal district of Sundargarh, the literacy rate at 65.22 per cent is higher than the overall literacy rate of the state at 63.61 per cent. This is primarily due to industrialisation and the establishment of industrial

Table 5.1
District-wise Literacy Rates in Orissa as per 1991 and 2001 Census

Sl. No.	Name of the district	1991				2001			
		Male	Female	Person	Gender Disparity*	Male	Female	Person	Gender Disparity*
1	Angul	67.66	34.32	51.53	0.9714	82.02	56.01	69.40	0.4644
2	Balasore	71.23	43.40	57.64	0.6412	81.75	59.57	70.94	0.3723
3	Bargarh	63.78	31.21	47.65	1.0436	77.93	50.03	64.13	0.5577
4	Bhadrak	74.62	46.35	60.54	0.6099	85.44	63.62	74.64	0.3430
5	Balangir	55.64	21.30	38.63	1.6122	70.36	39.27	54.93	0.7917
6	Boudh	60.61	21.01	40.98	1.8848	76.86	39.78	58.43	0.9321
7	Cuttack	77.41	52.44	65.46	0.4762	85.46	66.19	76.13	0.2911
8	Deogarh	59.43	29.26	44.45	1.0311	73.79	47.56	60.78	0.5515
9	Dhenkanal	68.80	40.33	54.91	0.7059	81.31	58.55	70.11	0.3887
10	Gajapati	41.76	17.44	29.37	1.3945	55.14	28.91	41.73	0.9073
11	Ganjam	63.88	29.87	46.72	1.1386	78.39	47.70	62.94	0.6434
12	Jagatsinghpur	78.27	53.05	65.77	0.4754	88.96	69.94	79.61	0.2719
13	Jajpur	70.50	45.29	58.00	0.5566	82.69	61.45	72.19	0.3456
14	Jharsuguda	67.29	37.11	52.73	0.8133	83.04	59.23	71.47	0.4020
15	Kalahandi	46.85	15.28	31.08	2.0661	62.88	29.56	46.20	1.1272
16	Kendrapara	76.82	50.67	63.61	0.5161	87.62	67.29	77.33	0.3021
17	Keonjhar	59.04	30.01	44.73	0.9673	72.53	46.71	59.75	0.5528
18	Khurda	78.74	55.39	67.72	0.4216	88.38	71.06	80.19	0.2437
19	Koraput	33.98	15.15	24.64	1.2429	47.58	24.81	36.20	0.9178
20	Malkangiri	28.24	11.69	20.04	1.4157	41.21	21.28	31.26	0.9366
21	Mayurbhanj	51.84	23.68	37.88	1.1892	66.38	38.28	52.43	0.7341
22	Nabarangpur	28.10	9.01	18.62	2.1188	47.36	21.02	34.26	1.2531
23	Nayagarh	73.00	40.74	57.20	0.7919	83.23	58.10	71.02	0.4325
24	Nuapada	42.31	12.78	27.52	2.3106	58.78	26.01	42.29	1.2599
25	Kandhamal	54.68	19.82	37.23	1.7588	69.98	36.19	52.95	0.9337
26	Puri	76.83	49.41	63.30	0.5549	88.73	67.80	78.40	0.3087
27	Rayagada	36.53	15.63	26.01	1.3372	47.35	24.31	35.61	0.9478
28	Sambalpur	65.90	36.43	51.52	0.8089	78.87	54.79	67.01	0.4395
29	Sonepur	61.48	23.38	42.62	1.6296	80.30	47.28	64.07	0.6984
30	Sundargarh	65.41	39.60	52.97	0.6518	75.69	54.25	65.22	0.3952
	Orissa	63.09	34.68	49.09	0.8192	75.95	50.97	63.61	0.4901
	CV	24.80	43.56	30.88	-	18.64	32.51	23.95	-

* Ratio of males to females minus one

Note: Literacy rate is the percentage of literates to population aged 7 years and above.

Source: Government of India (2001), *Census of India: Provisional Population Totals, Series-22: Orissa*, Paper 1, Directorate of Census Operations, Orissa, Bhubaneswar

towns, such as Rourkela, as well as the role played by the Christian Missionaries.

The overall literacy rate is the highest (80.19 per cent) in Khurda district and the lowest (31.26 per cent) in Malkangiri district. The high literacy rate in Khurda district is probably due to Bhubaneswar, the capital of the state, being in the district. While male literacy rate is the highest (88.96 per cent) in Jagatsinghpur district and the lowest (41.21 per cent) in Malkangiri district, the female literacy rate is the highest (71.06 per cent) in Khurda district and the lowest (21.02 per cent) in Nabarangpur district. Thus, both male and female literacy rates are the lowest in the backward southern region of the state.

There is also significant disparity between rural and urban Orissa in the literacy rates at 60.44 per cent and 80.95 per cent, respectively. This is evidently due to better physical and economic access to education in urban areas. The gender disparity is more prominent in the rural areas as compared to the urban areas. Similarly, between the rural and urban areas, the disparity in literacy rate amongst females is more as compared to males. However, the extent of disparity by area and gender has been continuously decreasing, as per the successive census data (Table 5.2).

5.3.2 Gender Disparity

The gender disparity in Orissa's literacy rate in 2001 was 0.4901 as against 0.8192 in 1991, a decline of 0.3291 points. This disparity is found to be much less in the developed coastal districts (such as Khurda, Cuttack, and Jagatsinghpur), whereas it is quite high in the backward districts (such as Kalahandi, Nuapada, and Nabarangpur), mostly in the KBK region. There is considerable variation in literacy rates across districts, especially amongst females. The coefficient of variation (CV) in literacy rates in 2001 among the districts is 23.95 per cent, with a value of 18.64 per cent for males and 32.51 per cent for females. But in 1991, the coefficient of variation in overall literacy rate was 30.88 per cent. Thus, though the gender and regional disparities in literacy have decreased between 2001 over 1991, the disparity is still high.

In order to reduce the gender disparity in schools, various strategies and activities have been adopted through the District Primary Education Project (DPEP) and the Sarva Sikshya Abhiyan (SSA). These include: (i) supply of free textbooks for girls; (ii) formation of resource groups on girls' education at block, district, and state level; (iii) provision of separate toilets for girls; (iv) training of teachers on gender aspects; (v) introduction of Village Education Committee (VEC)

Table 5.2
Literacy in Orissa (per cent)

Areas	Census	Males (per cent)	Females (per cent)	All (per cent)	Gender Disparity
Rural	1981	53.54	21.99	37.77	1.4347
	1991	60.00	30.79	45.46	0.9487
	2001	73.57	47.22	60.44	0.5580
Urban	1981	76.38	50.95	64.81	0.4991
	1991	81.21	61.18	71.99	0.3274
	2001	88.32	72.68	80.95	0.2152
All Areas	1981	56.45	25.14	40.97	1.2454
	1991	63.09	34.68	49.09	0.8192
	2001	75.95	50.97	63.61	0.4901
Rural–Urban Disparity					
	1981	0.4266	1.3170	0.7159	
	1991	0.3535	0.9870	0.5836	
	2001	0.2005	0.5392	0.3393	

Source: Government of India (2002), *National Human Development Report, 2001*, Planning Commission, Oxford University Press, New Delhi.

and Parent–Teacher Association (PTA) in schools; (vi) preparation of textbooks free from gender bias; (vii) provision of funds for the construction of 40 seated girls’ hostel in 396 Kanyashrams in the KBK districts; (viii) introduction of the National Programme for Education of Girls at Elementary Level (NPEGEL) in 165 educationally backward blocks of Orissa; (ix) opening of 2,875 model cluster schools for girls education under Sarva Sikshya Abhiyan (SSA); and (x) opening up of residential girls’ school under Kasturba Gandhi Vidyalaya, etc.

5.3.3 Social Disparity

Amongst different social groups, the literacy rate in Orissa is the lowest in the case of Scheduled Tribes and the highest among general castes, as can be seen in the 1971, 1981, and 1991 Census (Table 5.3). Furthermore, the gender disparity in literacy is found to be the highest among the Scheduled Tribes, and lowest in the case of general castes.

The present system of education in tribal areas of Orissa is unsatisfactory due to several factors. These can be categorised as: teacher absenteeism, the growing gap between teachers and the taught, apathy of teachers, unsuitable school timings, lack of participation of parents in the management of schools, and the prevalence of physical punishment for students (*Sikshya Sandhana* 2002).

Other factors that contribute to the process of

deterioration of the education system in tribal areas include: the growing inferiority complex of tribal students; increasing contempt for manual labour; different languages used at home and at school; apathetic attitude of non-tribal teachers towards tribal students, their language and culture; lack of teacher training for addressing the bilingual classroom; lack of resources and academic support at the district and sub-district levels; reluctance of tribal parents to send girls to schools; and the individualism of teachers.

5.3.4 Adult Literacy

In Orissa, the adult literacy rate is lower than the total literacy rate, both in rural and urban areas (Annexure Table 4). The projected total adult literacy rate was 52.83 per cent in 2001, with the highest being in Puri district (69.07 per cent) and the lowest in Koraput district (22.59 per cent). Adult literacy is found to be greater in urban Orissa than in rural Orissa, for all the undivided districts and the state as a whole (77.08 per cent and 48.42 per cent respectively). Further, the gender disparity in adult literacy rate is more pronounced in the rural areas as compared to the urban areas.

5.4 Levels of Educational Attainment: Gender Disparity

Though literacy is the most standard and popular indicator of development in a society, it does not by itself say anything about the level of educational attainment.

Table 5.3

Social Group-wise and Sex-wise Literacy Rates (in per cent) in Orissa

Caste	1971				1981				1991			
	Male	Female	Total	Gender Disparity	Male	Female	Total	Gender Disparity	Male	Female	Total	Gender Disparity
Scheduled Caste	25.98	5.17	15.61	4.0251	35.26	9.40	22.41	2.7511	43.03	17.03	30.19	1.5267
Scheduled Tribe	16.38	2.58	9.46	5.3488	23.27	4.76	13.96	3.8887	27.93	8.29	18.10	2.3691
General	49.35	20.37	35.02	1.4227	58.15	29.84	46.03	0.9487	63.50	39.54	51.77	0.6060
Total	38.30	13.92	26.18	1.7514	47.09	21.12	35.37	1.2296	52.41	28.83	40.80	0.8179

Note: Literacy rates have been calculated on the basis of no. of literates and total population

Source: Government of India, *Census of India, Orissa, 1971,1981,1991*, Office of the Registrar General, Bhubaneswar.



5.4.1 Primary, Middle, High School, and Above

In Orissa, a significantly higher proportion of females is illiterate as compared to males (Table 5.4). In addition, the proportion of males completing different levels of school education (primary, middle, and secondary) is higher than females, though the difference between these two narrows down with time.

As per *NFHS 1998–99 (National Family Health Survey 1998–99)*, only 20.8 per cent of the adult male population has completed primary level education as against 15.8 per cent in the case of females. The proportion of adult male and female population completing middle, high school, and higher secondary (and above) were even lower. Only 8.5 per cent of males and 4.1 per cent females have completed high school level of education. The

percentage of adult illiterates is quite high in the case of females (48.7 per cent) as compared to males (24.0 per cent). The proportion of adult females at all levels of education was much lower than that of adult males (Annexure Table 5).

5.4.2 Mean and Median Years of Schooling

The mean years of schooling provide a summary statistic of the level of education of the population. As per *NFHS 1998–99*, the mean years of schooling for males and females in Orissa were 5.06 and 3.06 years respectively, and these figures were less than the corresponding all-India average (5.33 and 3.39, respectively). The relative position of the state is also behind that of most other states (Table 5.5).

Another important indicator of education in the state is the median number of years of schooling, which was 1.8 for Orissa in 1992-93. The figures for the male

Table 5.4
Distribution of Population by Educational Level in Orissa

(in per cent)

Educational level	1971			1981			1991		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	6	7	8	10	11	12
Illiterate	61.71	86.08	73.82	52.90	78.88	65.77	47.59	71.17	59.20
Literate without educational level	6.54	2.80	4.68	19.01	9.49	14.29	18.12	10.91	14.57
Primary	21.40	8.83	15.16	12.53	6.52	9.55	11.03	7.15	9.12
Middle	7.25	1.88	4.58	9.26	3.71	6.51	13.34	7.17	10.30
Matriculate/Secondary	2.43	0.33	1.38	3.59	0.91	2.26	4.76	1.99	3.39
Higher Secondary/ Intermediate/Pre-University	-	-	-	0.99	0.21	0.60	1.83	0.70	1.27
Non-technical diploma or certificate not equal to degree	0.11	0.01	0.06	-	-	-	0.13	0.03	0.08
Technical diploma or certificate not equal to degree	0.07	-	0.04	0.45	0.06	0.27	0.48	0.12	0.31
Graduate and above	0.49	0.07	0.28	1.27	0.22	0.75	2.72	0.76	1.76
All Levels	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Government of India, *Census of India, Social and Cultural Tables*, Orissa (1971, 1981, and 1991), Registrar General of India.

Table 5.5
**Mean Years of Schooling of
 Population, 1998–99**

States/Union Territories	Male	Female
Meghalaya	4.30	3.41
Bihar	4.51	2.10
Andhra Pradesh	4.72	2.87
Madhya Pradesh	4.84	2.73
Arunachal Pradesh	4.88	3.55
Rajasthan	4.94	2.24
Assam	4.98	3.67
Sikkim	5.02	3.89
Orissa	5.06	3.06
West Bengal	5.08	3.43
Uttar Pradesh	5.13	2.75
J & K	5.14	3.10
Nagaland	5.32	4.16
INDIA	5.33	3.39
Karnataka	5.58	3.87
Gujarat	5.65	3.80
Tamil Nadu	5.84	4.04
Haryana	5.92	3.91
Punjab	5.96	4.86
Maharashtra	6.10	4.17
Mizoram	6.12	5.50
Manipur	6.45	4.51
Himachal Pradesh	6.49	4.80
Kerala	7.03	6.48
Goa	7.08	5.78
Delhi	8.00	6.39

Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa*, IIPS, Mumbai.

and female population in Orissa have improved only marginally, from 3.9 and zero per cent, respectively, in 1992–93 to 5.1 and 1.2 per cent in 1998–99, respectively (*NFHS 1992–93 and 1998–99*).

In order to improve the level of education, the provision of adequate and proper educational facilities is necessary. An analysis of the situation existing in school education is described below.

5.5 Students in Schools

5.5.1 Enrolment

Post-independence, there has been an explosion in school enrolments in Orissa and in other states of India. In Orissa, the number of students in the primary education system increased over 19 times between 1947–48 and 2003–04. The corresponding increase for middle level education and secondary education was over 30 times and over 86 times, respectively. These figures represent very high rates of growth for a poor state.

Currently, there are 4.9 million children enrolled in primary schools, nearly one million in upper primary schools, and 1.3 million in secondary schools. Thus, the growth in total enrolment in schools is impressive (Annexure Table 6). However, when we compare the decade of the 1980s to that of the 1990s, there has been a virtual stagnation or deceleration in the average annual rate of growth of enrolment. The figures are 2.71 per cent and 2.78 per cent at the primary level; 5.86 per cent and (-) 1.74 per cent at the middle school level; and 9.76 per cent and 4.13 per cent at the high school level in the 1980s and 1990s, respectively.

The poor enrolment is due to a combination of poor financial background, illiteracy among parents, lack of interest among children to study, the burden of domestic work, and the need to take care of siblings (Misra and Behera 2000). More students are taking admission in English medium schools as compared to the earlier years, even though studying in these schools is expensive. Consequently, the number of students in English medium schools is increasing day by day. Presently, there are 144 English medium schools affiliated to CBSE/ICSE (imparting education up to secondary level) in the state.

Gender Disparity in Enrolment

Between 1950–51 and 2000–01, the enrolment of girls has increased at an annual rate of 7 per cent at the primary level, compared to 4.9 per cent for boys. The corresponding increase in growth rates for girls

and boys at the upper primary level were above 10 per cent and 5.9 per cent, respectively. The rapid growth of girls' enrolment has improved gender parity in the schools. The gender parity index for enrolment in primary schools increased from 0.65 in 1980–81 to 0.71 in 1990–91, remained at the same level of 0.71 in 2000–01 and then increased to 0.90 in 2003–04. In the case of enrolment to the upper primary section, the index increased from 0.48 to 0.62 (between 1980–81 and 1990–91), fell to 0.61 in 2000–01 and again increased to 0.82 in 2003–04 (Table 5.6). In 2000–01, girls accounted for 41 per cent of the students at the primary level and 38 per cent at the upper primary level. . Thus, there has been a significant improvement in the gender parity index, although girls still lag behind boys in terms of enrolment ratios (Table 5.7).

Gender Disparity in Gross Enrolment Ratio

The absolute figures on enrolment and their high growth rates do not say much about the progress of education. To gauge the progress, it is important to look at the percentage of children of school-going age group who are actually attending schools. At the time of independence (in 1947–48), the gross

Table 5.6
Gender Parity Index* in Enrolment in Elementary Education in Orissa

Year	Primary	Upper Primary
1950–51	0.26	0.08
1960–61	0.44	0.13
1970–71	0.53	0.32
1980–81	0.65	0.48
1990–91	0.71	0.62
2000–01	0.71	0.77
2002–03	0.87	0.80
2003–04	0.90	0.82

Note: * Ratio of number of girls to number of boys enrolled in school.
Source: (i) For the years 1950–51 to 2000–01, Government of India, *Selected Educational Statistics*, Department of Education, Ministry of Human Resource Development, New Delhi, various years. (ii) Directorate of Mass Education, Government of Orissa.

enrolment ratio in primary education in the state was 14 per cent. By 1999–2000, this ratio increased to 108.8 per cent compared to 105.4 per cent in 1992–93. A sex-wise increase in gross enrolment ratio in primary education was also found in different years, but the ratio was more for boys compared to girls. In the case of upper primary education, the

Table 5.7
Gross Enrolment Ratio in Primary and Upper Primary Schools in Orissa

Year	Primary (Age-group: 6–11 years)				Upper Primary (Age-group: 11–14 years)			
	Boys	Girls	Total	Gender Parity Index*	Boys	Girls	Total	Gender Parity Index*
1947–48	28.0	1.0	14.0	0.04	6.0	0.4	3.3	0.07
1950–51	28.0	7.0	17.0	0.25	7.0	0.5	4.0	0.07
1960–61	89.0	39.0	64.0	0.44	16.0	2.0	9.0	0.13
1973–74	93.6	56.5	75.4	0.60	31.0	11.2	21.8	0.36
1979–80	97.8	67.0	82.8	0.69	39.6	19.1	29.5	0.48
1986–87	109.1	82.8	96.2	0.76	56.9	26.7	40.7	0.47
1992–93	120.7	89.2	105.4	0.74	75.7	44.1	60.2	0.58
1998–99	109.5	79.8	94.9	0.73	64.8	37.4	51.3	0.58
1999–2000	125.7	91.5	108.8	0.73	66.6	43.8	55.3	0.66

Note: * Ratio of number of girls to number of boys enrolled in schools.
Source: (i) Official communication of the Directorate of Elementary Education, Bhubaneswar; (ii) Government of Orissa (2000), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.

gross enrolment ratio increased from 3.3 per cent in 1947–48 to 55.3 per cent in 1999–2000. The boys had a more favourable ratio as compared to the girls (Table 5.7).

This shows that there exists gender disparity in gross enrolment ratios both in primary and upper primary education, though there has been improvement in the gender parity index. The gender parity index in primary education improved till 1987 (when it reached 0.76) but declined thereafter (to 0.74 in 1992–93 and then to 0.73 in 1999–2000). However, it remained stable in upper primary schools at 0.58 in 1992–93 and in 1998–99, and increased thereafter to 0.66 in 1999–2000 (Table 5.7).

The decline in the gross enrolment ratio of girls after 1992–93 has resulted in a widening of the gender disparity. The progress in gross enrolment ratio is steady both at the primary and upper primary levels (Fig. 5.1 and Table 5.7).

Social Disparity in Gross Enrolment Ratio

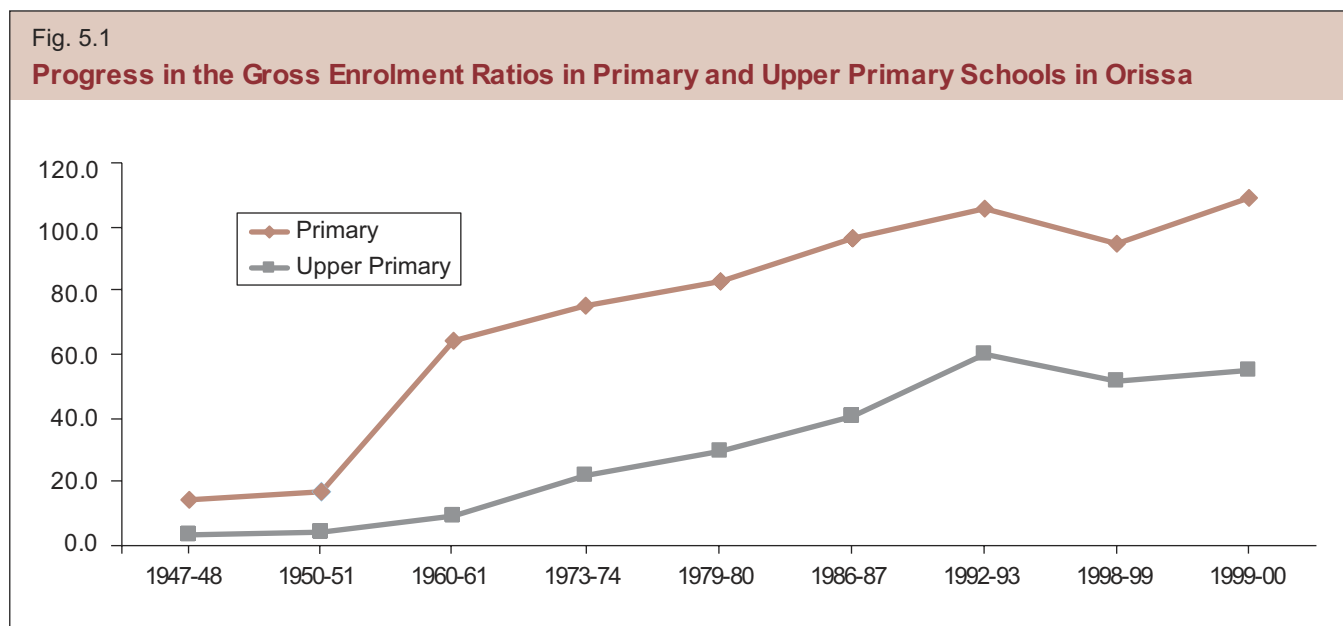
In the case of primary education, the gross enrolment ratio among Scheduled Castes increased from 77.5 per cent in 1980–81 to 132.9 per cent in 1990–91

but declined to 115.1 per cent in 1999–2000. For Scheduled Tribes, the ratio increased from 67.7 per cent to 97.0 per cent (between 1980–81 and 1990–91) and further to 99.7 per cent in 1999–2000 (Table 5.8). Thus, the gross enrolment ratio among Scheduled Castes is higher than that among Scheduled Tribes. Among both SCs and STs, the ratio for boys is far higher than that for girls in primary education as well as in upper primary education.

The gross enrolment ratio in upper primary education is 55.6 per cent for SC and 41.1 per cent for ST in 1999–2000 compared to 48.6 per cent and 28.5 per cent in 1990–91 respectively. The difference between the SC and ST figures is explained by the fact that most of the former reside in coastal districts where educational facilities are far better than in hilly and forest areas where STs live. However, there has been a steady increase in parity index for both SC and ST populations (Table 5.8) between 1980–81 and 1990–2000.

Enrolment in DPEP Districts

In 1999–2000, the average percentage of students enrolled in the 16 DPEP districts in the age-group 6–14 years (net enrolment ratio) was 74.71, as per



Source: (i) Official communication of the Directorate of Elementary Education, Bhubaneswar; (ii) Government of Orissa (2000), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.

Table 5.8
**Gross Enrolment Ratio among Scheduled Castes and Scheduled Tribes
in Elementary Education**

Year	Primary				Upper Primary			
	Boys	Girls	All	Gender Parity Index	Boys	Girls	All	Gender Parity Index
Scheduled Caste								
1980–81	99.2	54.8	77.5	0.55	28.2	8.5	18.4	0.30
1990–91	158.5	106.0	132.9	0.67	69.3	27.5	48.6	0.40
1999–2000	139.8	90.0	115.1	0.64	68.2	42.8	55.6	0.63
Scheduled Tribe								
1980–81	92.3	42.3	67.7	0.46	20.7	5.9	13.4	0.29
1990–91	128.8	63.6	97.0	0.49	40.2	16.7	28.5	0.42
1999–2000	130.0	69.8	99.7	0.54	49.5	32.7	41.1	0.66

Source: Government of India, *Selected Educational Statistics*, Department of Education, New Delhi, various years.

a survey by the DPEP, Bhubaneswar. It was highest in the case of general castes (81.85 per cent) and the lowest in the case of Scheduled Tribes (65.54 per cent). Thus, there is still a large proportion of children in the age-group 6–14 year who have not been enrolled in the schools in the DPEP districts in spite of the implementation of the DPEP in those districts (Table 5.9). As per the data supplied by

Table 5.9
**Enrolment Rate (per cent) of Students in the Age-group 6–14 years by Sex and Social
Groups in the DPEP Districts in Orissa, 1999–2000**

Sl. No.	District	SC			ST			General			Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1	Bargarh	77.05	77.68	77.35	78.54	78.04	78.30	78.31	78.03	78.17	78.12	77.97	78.05
2	Balangir	79.81	76.02	78.07	73.03	67.28	70.33	78.18	74.22	76.32	77.28	72.90	75.24
3	Dhenkanal	87.29	84.70	86.11	76.51	73.87	75.35	93.05	92.97	93.01	89.98	89.46	89.74
4	Gajapati	75.72	69.90	73.04	73.39	66.21	70.18	79.61	77.92	78.83	76.09	71.34	73.93
5	Kalahandi	79.45	74.53	77.20	65.32	59.65	62.84	83.15	76.26	79.99	76.73	70.94	74.11
6	Keonjhar	86.79	86.94	86.86	74.99	69.53	72.48	92.12	91.00	91.57	83.21	80.67	82.02
7	Rayagada	70.58	60.79	66.07	80.56	72.70	76.84	80.56	68.77	75.16	73.66	63.78	69.10
8	Sambalpur	84.46	83.07	83.82	81.91	78.63	80.36	77.38	76.69	77.05	80.68	78.62	79.70
9	Boudh	91.34	83.82	87.78	84.44	75.06	80.05	92.65	88.05	90.46	91.49	85.74	88.76
10	Kandhamal	87.64	82.03	84.98	81.60	71.48	76.82	88.72	83.72	86.32	84.77	77.04	81.10
11	Koraput	73.38	63.16	68.67	59.38	44.55	52.67	78.40	72.99	75.86	68.61	58.36	63.90
12	Malkangiri	84.95	78.63	81.97	60.99	49.00	55.53	82.53	74.45	78.76	71.13	61.72	66.79
13	Mayurbhanj	85.24	78.38	82.02	74.87	61.61	68.78	89.24	86.91	88.13	80.09	71.08	75.89
14	Nabarangpur	73.80	62.84	68.70	50.93	31.07	41.81	66.11	51.25	59.22	58.56	41.57	50.72
15	Nuapada	83.41	74.08	79.06	75.80	60.96	68.89	81.39	71.72	76.82	79.67	68.23	74.31
16	Sonepur	90.17	85.93	88.16	87.56	83.82	85.78	91.81	88.93	90.43	90.94	87.62	89.36
	TOTAL	80.56	74.94	77.95	70.37	59.87	65.54	83.65	79.85	81.85	77.78	71.19	74.71

Note: SC= Scheduled Caste, ST= Scheduled Tribe, GEN= General.

Source: Office of DPEP, Bhubaneswar.

Department of School & Mass Education, Govt. of Orissa, there were 7,241,940 children in the age group of 6–14 years in December 2003, of which 95.63 per cent have enrolled their names in schools while the rest are not enrolled.

Age-specific Enrolment Ratio

Around two-thirds of the children in the age-group 6–13 years were in schools in 1995–96, with the rest not attending any school (Government of India 1996). In the higher age groups, the ratio of children not attending schools was much higher (Table 5.10).

5.5.2 Attendance

The *National Family Health Survey (NFHS)* provides estimates on school attendance rates for the years 1992–93 and 1998–99. Because of the difference in age groups for 1992–93 (6–14 years) and 1998–99 (6–17 years), it is difficult to compare the data between the two years. Sex-wise, the school attendance rate was 66.66 per cent for females as against 77.2 per cent for males in 1998–99. There was not much of a difference in the male attendance rates from rural and urban areas (for 1998–99), whereas there was almost a 10-percentage point difference in the case of females from rural and urban areas (Table 5.11).

5.5.3 Retention

As per the estimate of the sixth All-India Educational Survey, about 50 per cent of the 1,094,174 children enrolled in class I remained till class V, implying that

Table 5.11
School Attendance Rate in Orissa

		1992–93 (Age-Group: 6–14 years)	1998–99 (Age-Group: 6–17 years)
Male	Urban	88.2	78.2
	Rural	74.7	77.1
	All	76.8	77.2
Female	Urban	78.6	75.4
	Rural	58.9	65.8
	All	62.0	66.8
All	Urban	83.5	76.9
	Rural	67.0	71.5
	All	69.6	72.1

Source: (i) International Institute for Population Sciences (IIPS) (1995), *National Family Health Survey 1992–93: Orissa*, Mumbai; (ii) International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa*, IIPS, Mumbai.

50 per cent of the children had dropped out. The retention rate was 53.44 per cent for boys (out of 594,892 boys enrolled in class I) as against 46.71 per cent for girls (out of 499,282 girls enrolled in class I) in class V. The retention rate of students was quite low in middle schools (Class VI–VII) and high schools (Class VIII–X) compared to primary schools (Class I–V). The retention rate of students till Class X was 21.78 per cent—24.72 per cent for boys and 18.29 per cent for girls (Table 5.12 and Fig. 5.2).

In order to retain children and prevent them from dropping out, DPEP has provided 311 Alternate and Innovative Schools in difficult areas. Several NGOs of the state are also working in this area with financial assistance from the central government.

5.5.4 Repetition

Repetition of grades by students is a worrying problem in Orissa. Many students repeat grades in primary schools due to prolonged absence from school. In some cases, parents request that their children continue in

Table 5.10
Age-Specific Enrolment Ratio of Students in Orissa, 1995–96

Age-group (years)	Rural			Urban			Total
	Male	Female	Total	Male	Female	Total	
6–10	69	54	61	80	79	80	63
11–13	73	54	64	81	79	80	66
14–17	53	32	43	69	67	68	47
18–24	18	4	11	28	17	24	13

Source: Government of India (1996), *Report on Participation in Education, 52nd Round, 1995–96*, National Sample Survey Organisation (NSSO), Ministry of Statistics, Planning, and Programme Implementation, New Delhi

Table 5.12
**Class-wise Retention Rate (per cent) of
 Students in Orissa, 1993**

Class	Boys	Girls	Total
I	100.00	100.00	100.00
II	82.24	78.61	80.58
III	78.18	72.62	75.64
IV	66.40	59.39	63.20
V	53.44	46.71	50.14
VI	47.31	35.01	38.98
VII	34.71	32.61	36.47
VIII	31.85	23.75	28.15
IX	29.48	21.88	26.01
X	24.72	18.29	21.78

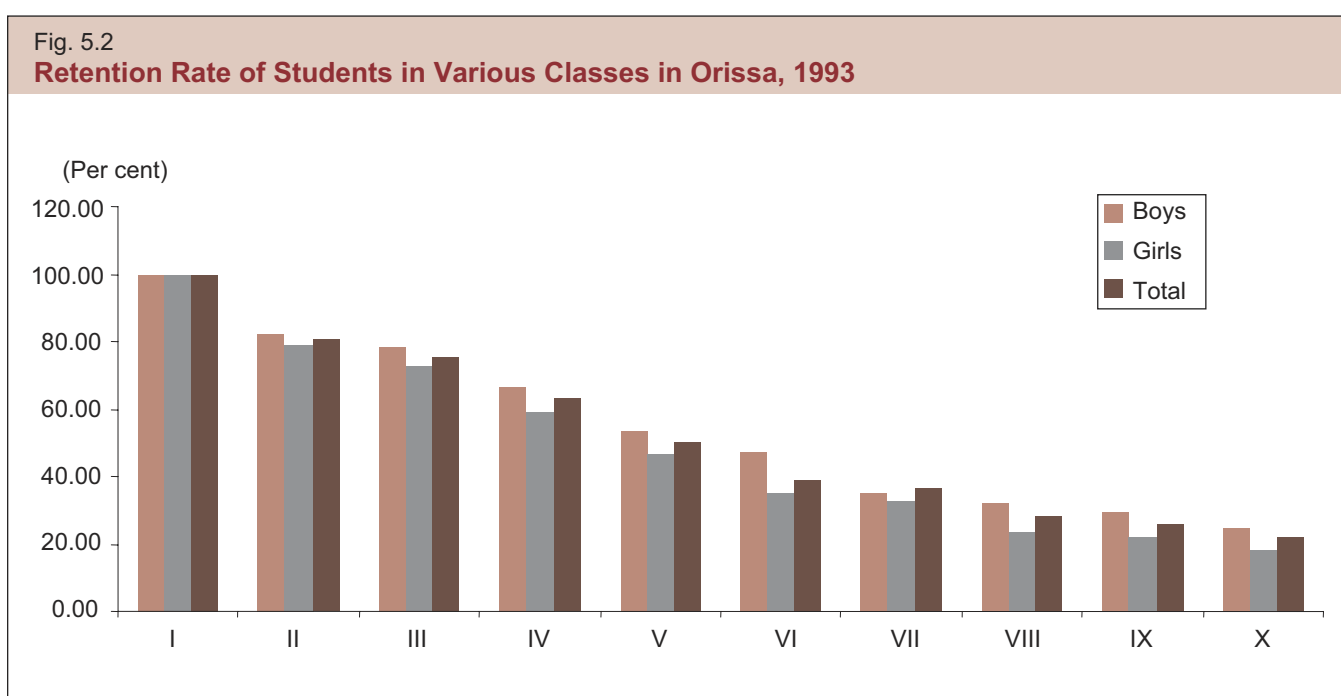
Source: Government of Orissa (2000), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.

the same class to improve their achievement levels, though the state government has a policy of no detention in primary classes. (Tilak 2002). Annexure Table 7 gives the rate of repetition of students in primary schools in the eight DPEP districts, with Kalahandi and Balangir districts showing fairly high rates.

In order to check repetition, particularly in the DPEP districts, the Government of Orissa has taken up various initiatives. They are: (i) continuous evaluation and provision of remedial teaching in schools where repetition is endemic, (ii) provision of special coaching during holidays to such children who are prone to repeat, and (iii) involvement of parents/community members in sharing the progress of the children in some difficult areas. In addition, special one-month summer camps at block and cluster levels have been planned for the repeaters in all the DPEP districts. The children are given remedial coaching and are promoted to the next higher grade after evaluation of their performance.

5.5.5 Dropout versus Pushed Out

Both NSSO and NFHS data show that the actual enrolment ratios are lesser than that indicated by the gross enrolment ratios. While gross enrolment ratios suggest that most of the children in the primary school going age group are already in schools, as many as 37 per cent of the children of this age group are actually outside the school system. There are no reliable estimates on out-of-school children. The Tapas Majumdar Committee (Government of India



Source: Government of Orissa (2000), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.

Janshala Programme in Orissa

In order to provide support to the ongoing primary education programme and to make it accessible and effective to all categories of primary school age children, the Janshala programme, was launched in 1998. It is a joint venture of the Government of India and five United Nations agencies (UNDP, UNICEF, UNFPA, UNESCO, and ILO). The main objectives of the programme are to: (i) enhance and sustain community participation in effective school management and protection of child rights, (ii) improve performance of teachers in using interactive, child centred and gender sensitive teaching methods in multi-grade classrooms, and (iii) improve attendance and performance of difficult-to-reach groups of children, especially the girls.

In Orissa, the programme has been implemented in seven blocks and three urban bodies, i.e., Puri Sadar block, Brahmagiri block, Krushna Prasad block, and Puri urban slum of Puri district; Athagarh block, Mahanga block, Nischintakoili block, and Cuttack urban slum of Cuttack district; Nilagiri block of Balasore district; and Bhubaneswar urban slum of Khurda district. The blocks have been selected on the basis of low female literacy and low achievements of students. In 2003–04, 255 Alternate School (AS) centres, 111 Early Childhood Care and Education (ECCE) centres, and 13 Bridge Course centres were opened in Orissa under the Janshala programme. In the programme, 24 NGOs have been involved in running the 178 AS centres in the state. A total

number of 2,441 students were enrolled in the ECCE centres during 2003–04.

The state government has done micro planning through household surveys in all the Janshala areas to identify out-of-school children (6–14 year) and to obtain information on infrastructure, teacher–pupil ratio, etc. Under the programme, all the 4,616 primary teachers were trained in three rounds of teacher training (21 days, each round had seven days of duration) and more emphasis was given on multi-grade teaching and child-centred education. Detailed strategies for activities targeted at disabled children were undertaken. Out of 1,427 identified disabled children, 430 children were enrolled in formal schools. The number of children enrolled in the Bridge Course centres was 479 out of which 31 children were mainstreamed in formal schools. The state government has also taken various steps for rectifying gender equity/ issues amongst adolescent girls and marginal group children/ working children/ minority community member's children.

The major problems faced by the state authority in the Janshala areas were: (1) overlapping of students mainstreamed through NGO partners, and (2) non-availability of information on the completion rate of students from formal schools, identification of areas having low/ high community involvement, along with the reasons.

Source: Extracted from *A Comprehensive Report on Janshala Programme, Orissa (Joint GOI–UN), Education For All Society, Orissa, Bhubaneswar.*

1999b) estimated it to be 12 lakhs, while many, including the Government of Orissa, put the figure at around 15 lakhs.

As per the estimate made by DPEP, Bhubaneswar in 1999–2000, the total number of out-of-school children was 21 lakhs, which was 26.89 per cent of the total children in the 6–14 year age group. District-wise (undivided 13 districts) estimates of the percentage of out-of-school children in Orissa reveal that it was highest in Puri district (43.35 per cent) and lowest in Kandhamal district (13.51 per cent). The Education

Deprivation Index shows that Koraput district is the most deprived district and Balasore district is the least deprived district (Table 5.13). The latest estimate made after the 'School Chalo' campaign under SSA in August 2003 indicates that, as on 31 December 2003, the total number of out-of-school children in the state was 8.09 lakhs. Out of this, 26.75 per cent were enrolled in formal schools, 15.52 per cent in Education Guarantee Scheme (EGS) centres, and 1.49 per cent in Alternate and Innovative Education (AIE) centres. The balance 56.24 per cent (4.55 lakhs) children were still out of school (Padhi 2004).



Table 5.13
Education Deprivation Index

Districts	Out of School (per cent)	Adult Illiteracy	Education Deprivation Index*
Orissa	26.89	47.17	74.05
Sambalpur	31.75	46.71	78.46
Sundargarh	38.72	40.34	79.06
Mayurbhanj*		59.49	59.49
Keonjhar	21.47	52.56	74.03
Balasore	14.06	36.61	50.67
Cuttack*	28.73	31.09	59.82
Dhenkanal	27.77	42.99	70.76
Boudh–Kandhamal	13.51	60.43	73.94
Balangir	24.90	57.22	82.12
Kalahandi	30.31	67.66	97.96
Koraput	36.92	77.41	114.33
Ganjam	33.64	53.83	87.47
Puri	43.35	30.93	74.27

* Education Deprivation Index is the sum total of percentage of out-of-school children plus adult illiteracy rate.

- Note: (i) Adult Illiteracy figures are for 2001, assuming that the extent of relationship between 1991 and 2001 is the same as 1981 and 1991.
(ii) Figures for out of school children in the 6–14 years age group are for 1999.
(iii) Educational deprivation index is the sum of adult illiteracy per cent (15+ age group) and per cent of out of school children in the 6–14 years age group.
(iv) * Mayurbhanj and the newly created Jajpur districts strangely retain a negative figure for out-of-school children in the 6–14 years age group.

- Source: (i) For out-of-school children: DPEP Districts Cell, Department of Mass and Elementary Education, Government of Orissa.
(ii) For Adult Illiteracy: Government of India, *Census of India, 1981, Series-16, Orissa, Part-IV, A, Social and Cultural Tables and Census of India, 1991, Series-19, Orissa, Part-IV, A, Socio-Cultural Tables.*

While many of the un-accessed children continue to remain out-of-school, most of the children enrolled in the schools grow up in poor and jobless households, deprived of basic needs like health, nutrition, food-security, clean drinking water, and housing. These out-of-school variables have, to a large extent, affected learning outcomes and contributed to the high rates of stagnation and dropout (Patnaik 2004).

The study made in Puri and Rayagada districts of Orissa

shows that the Mid-day Meal Scheme has contributed to an increase in the enrolment of children and a decrease in the dropout of the students at the primary level. However, the contribution from other factors like spread of education, general awareness about education and the impact of the other developmental programmes of the government cannot be disregarded (Misra and Behera 2000). Providing teachers with learning materials and encouraging parents to get more involved in the schooling of their children are more effective in reducing dropout rates than a school feeding programme. Private schools can be induced to locate and expand in the areas that cater to the poor (King and Orazem 1999). Individuals can also be encouraged to construct/contribute to initial infrastructure like school buildings, land and equipment in the names of their parents/relatives and donate it to the government.

Attendance is also directly related to school quality. Students tend to remain in good schools and drop out of poor ones (Hanushek 1995). Evidence shows that those who have not completed a given level appear to have attended poor schools. Improving facilities in schools tends to retain students, other things being equal.

It is well known that children who attend school do not necessarily complete a given level of education. The problem of dropouts is a serious one in the Indian education system and the rate of dropouts is an important indicator of the internal efficiency of the education system. In Orissa, the rate of dropouts is found to be very high. It was 34.7 per cent at primary level and 59.0 per cent at upper primary level in the year 2002–03 (Table 5.14). The improvement in the dropout rates over the years has been very slow (Figs 5.3 and 5.4). The rate of dropouts is marginally higher in the case of girls in upper primary schools. Among Scheduled Castes and Scheduled Tribes, the dropout rates were higher, with the Scheduled Tribes accounting for the highest rates both in primary (53.4 per cent) and upper primary education (77.7 per cent) in 2002–03 (Table 5.14).

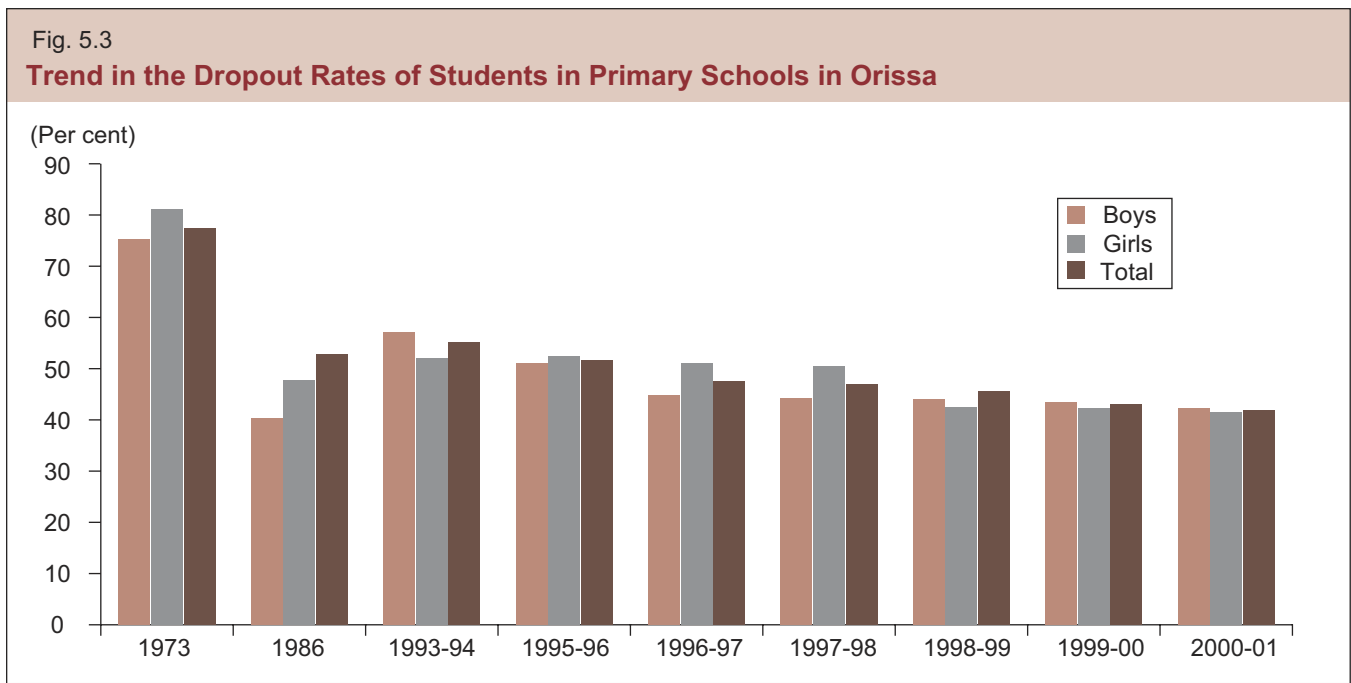
Table 5.14
**Social Group-wise Dropout Rates of Students in
 Primary and Upper Primary Stage in different years in
 Orissa (per cent)**

Year		Primary			Upper Primary		
		Boys	Girls	Total	Boys	Girls	Total
1973	All children	75.3	81.1	77.5	84.2	90.2	86.6
	SC	83.2	90.3	85.7	-	-	-
	ST	90.6	96.1	92.0	-	-	-
1986	All children	40.3	47.7	52.9	65.4	73.7	69.0
	SC	-	-	-	-	-	-
	ST	-	-	-	-	-	-
1993-94	All children	57.1	52.1	55.1	62.6	59.6	66.2
	SC	-	-	-	-	-	-
	ST	-	-	-	-	-	-
1995-96	All children	51.1	52.4	51.6	61.6	72.8	67.2
	SC	52.2	60.8	55.8	70.5	81.7	75.4
	ST	67.8	74.7	70.2	79.0	84.6	81.2
1996-97	All children	44.9	51.1	47.6	56.0	66.0	59.6
	SC	51.6	60.1	55.4	70.0	81.2	75.0
	ST	67.1	74.1	69.9	28.7	84.2	80.9
1997-98	All children	44.2	50.5	47.0	55.2	64.7	59.1
	SC	57.4	59.7	54.9	51.4	72.1	60.6
	ST	63.4	71.3	68.7	73.5	79.7	76.0
1998-99	All children	44.0	42.4	45.6	59.0	64.0	55.0
	SC	51.2	55.7	52.9	50.3	70.6	59.4
	ST	63.1	68.3	65.0	72.0	78.1	74.5
1999-2000	All children	43.5	42.2	43.0	53.6	63.8	57.7
	SC	51.0	54.9	52.5	50.0	70.2	59.0
	ST	63.0	67.9	64.7	71.7	78.0	74.0
2000-01	All children	42.3	41.4	41.8	52.9	61.1	57.0
	SC	50.5	59.3	52.1	49.7	69.7	58.6
	ST	61.7	66.5	63.4	70.9	77.1	73.2
2001-02	All children	42.0	40.0	41.0	52.0	60.5	56.0
	SC	50.0	52.0	51.0	49.0	68.0	58.0
	ST	61.0	65.0	63.0	70.0	76.0	73.0
2002-03	All children	32.3	36.5	34.7	57.7	60.5	59.0
	SC	35.8	38.7	37.3	62.0	67.0	64.5
	ST	49.3	57.4	53.4	75.0	80.3	77.7

Source: Directorate of Elementary Education, Government of Orissa, Bhubaneswar.

Another important problem in the school education in Orissa is that students are being ejected from the education system due to non-availability of admission opportunities. The Sixth All-India Educational Survey report (Government of Orissa 2000) has shown that around 3,620,000 children are being pushed out from upper primary education every year because of inadequate number of upper primary schools. As per the national norm, there should be one upper primary school for every two primary schools. Thus, in Orissa, for a total of 41,125 (36,306 primary schools and 4,819 primary sections attached to other categories of schools) institutions catering to primary education, there should have been 20,563 upper primary institutions. But there are only 11,022 institutions (10,259 upper primary schools and 763 upper primary sections). Thus, a large number of children are unable to pursue upper primary education due to lack of institutions.

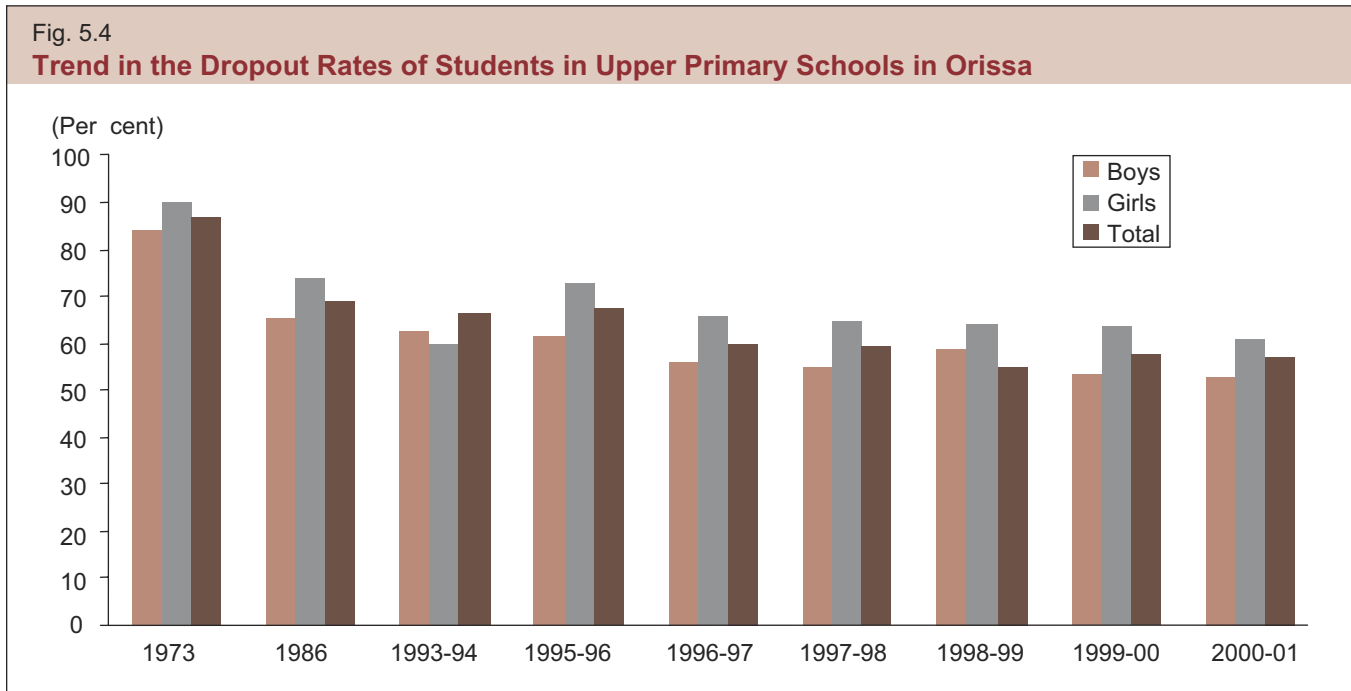
In order to reduce dropout rates among Scheduled Castes and Scheduled Tribes, the Government of Orissa has a special programme involving the establishment of special schools such as *sevashrams*, residential *sevashrams*, and *kanyashrams*. This is in accordance with the recommendation of L.M.



Source: Directorate of Elementary Education, Government of Orissa, Bhubaneswar.

Srikant, the Commissioner of Scheduled Castes and Scheduled Tribes of India, to establish *sevashrams* and *ashramshalas* to teach Scheduled Tribe students up to the primary and middle school levels, respectively. There has been no increase in the number of such special schools. Meanwhile, the government has also

introduced the teaching of *Santali* language in 'OL CHIKI' script on an experimental basis. This is being taught as an additional language at the primary stage in 30 primary schools (20 in Mayurbhanj district, five in Keonjhar district, and five in Sundargarh district) in order to increase the enrolment and reduce the



Source: Directorate of Elementary Education, Government of Orissa, Bhubaneswar.

dropout of Santal students. The experimental use of *Santali* language at the primary level in the districts has not been fruitful due to lack of continuous monitoring and supervision (Kundu 2000). Besides this, DPEP Orissa has developed six tribal Oriya languages at the primary level for Saora, Juang, Kuvi, Kui, Bonda, and Konya children and introduced these languages in Class I. Teachers have been trained to use these languages.

The rates of non-enrolment and dropout are more worrying since these are much higher than the rates of repetition. Important factors responsible for the high dropouts of children, particularly girls and those belonging to Scheduled Caste and Scheduled Tribe are: (i) poverty, (ii) high incidence of illiteracy of the parents, (iii) high opportunity cost of these children, (iv) socio-cultural barriers for girls to go to school, (v) poor health and nutritional status of the children, and (vi) lack of basic infrastructure in schools.

An uninteresting curriculum, absence of teachers, lack of teaching-learning materials, uninspiring teaching methods, absence of female teachers, uncongenial school atmosphere, and lack of separate toilet for girls are some of these factors (Tilak 2002). In this connection, the Orissa Primary Education Programme Authority (OPEPA) provides some relevant information (Table 5.15), which shows that about 52 per cent of the children dropped out of school due to: (i) lack of interest in studies, (ii) being earning members of the family (iii) being financially weak, and (iv) involvement in household work. Nearly 60 per cent of the children were never enrolled in schools due to the above reasons. One can attribute the 'lack of interest' to: (i) poor quality and quantity of physical and human infrastructure available in schools (ii) poor quality of instruction, including the alien nature and irrelevance of the curriculum (iii) economic and other social factors (Tilak 2000).

5.6 Performance of Students

The findings of as many as 96 research studies highlight the role of certain key educational inputs in

deciding the performance of students in developing countries (Hanushek 1995). The main educational inputs are: (i) teacher–student ratio, (ii) teacher’s education, (iii) teacher’s experience, (iv) expenditure per student, and (v) facilities like school building, library, and laboratories. Studies on total expenditure per student and facilities show that the relationship between students’ performance and the two inputs are statistically significant and positive. There is also a positive relationship between teachers’ education and students’ performance.

Besides the above major inputs, certain other factors which influence students’ performance are: (i) curriculum, (ii) instructional methods, (iii) teacher training programmes, (iv) textbooks, (v) writing materials, and (vi) amount of time devoted

Table 5.15
Reasons for Dropout and Non-Enrolment in Schools in Orissa, 2003–04

Reasons	Dropout	Non-enrolment
Crowded class room	0.8	0.0
Problems with teachers	7.2	8.5
Difficulties in reaching school	5.8	8.1
Difficulties in learning	6.2	0.0
Sibling care	0.3	0.5
Household work	12.3	15.8
Migration	0.8	0.0
Earning member of family	14.5	26.8
Financially weak	15.3	13.2
Completed the desire level	0.5	0.0
Community/social taboo	0.0	2.4
Child not interested in studies	10.2	3.6
Parents not interested in studies	4.5	4.9
Awaiting admission to the next level	0.0	1.2
Others	21.6	15.0
Total	100	100

Source: District Information System for Education (DISE), Orissa Primary Education Programme Authority (OPEPA), Bhubaneswar.

to instruction. Besides these measurable educational inputs, other qualitative inputs of importance are: (i) family inputs, i.e., family's socio-economic level as in parental education, income, wealth and family size, (ii) socio-demographic characteristics of fellow students, and (iii) community factors.

Thus, there is a multiplicity of factors, both from the supply and demand side, which have a bearing on student performance (Hanushek 1995). The Indian experience shows that the quality of the school plays a major role in the achievements of pupils. Schools with better internal management perform better. Similarly, schools with regular class-work and homework also fare better. An active Parent-Teacher Association (PTA) also enhances the functioning of a school. Improving school quality is an important means of raising pupils' achievements (PROBE Team 1999).

The Baseline Assessment, Mid-term Assessment, Terminal Assessment Surveys under DPEP, the National Achievement Survey (by NCERT) and the Common Evaluation Programme (under OPEPA), indicate that there is a low level of learner achievement in Orissa. The abysmally poor performance levels of learners defeats the very purpose of education (Panda 2004).

There has been a decrease in the number of students during the last four to five years, largely due to curtailment of expenditure on education and a parallel increase in the cost of education. In 2000, 50,422 students appeared for the class V scholarship examination. The number decreased to 46,644 in 2001 and further to 46,429 in 2002. The number of students who appeared for the upper primary or ME common examination in 2000, 2001, and 2002 were 484,732; 480,470; and 449,569 respectively. Similarly, in the Board examination (class X), there has been a continuous decrease in the number of students appearing, from 273,745 in 2000 to 263,617 in 2001 and further to 246,803 in 2002 (Annexure Table 8). The pass rate has also continuously decreased in the Board examination (class X) up to 2001. The

practice of setting multiple question papers in the examination, which was resorted to for checking the malpractices in the examination hall, may have also contributed to this to some extent.

Similarly, there is a decline in the total enrolment and appearance of students for the +2 examinations. In the Higher Secondary examination (+2 examination), enrolment of students decreased from 243,021 in 2000 to 197,064 in 2002 and number of students appearing for the examination decreased from 236,498 in 2000 to 214,516 in 2001 and further to 189,904 in 2002 (Annexure Table 9). The arts and commerce streams showed a decline in enrolment and appearance in the examination during the same period, but a small increase was registered in the science stream (Annexure Table 9). The fall in the enrolment and appearance in the examinations during this period was presumably due to the unprecedented Super Cyclone in the year 1999 (Department of Higher Education, Government of Orissa). The increase in the science stream may be due to the popularity of science education/technical education, particularly engineering, after the liberalisation and consequent inauguration of new private institutes. Another reason for this could be the increase in the pass percentage of the ICSE and CBSE examinations in the state, since most of the students passing out prefer to take admission in the science stream (Department of Higher Education, Government of Orissa). However, the pass rate (success rate in examination) in the +2 annual examination continuously decreased from 65.71 per cent in 1998 to 36.99 per cent in 2001. But in 2002, the pass rate increased to 57.05 per cent (Annexure Table 9).

The above analysis shows that post 2000, the number of students who appeared for the Board and Higher Secondary examinations has significantly decreased. There is clearly a case of students exiting from the high school and higher secondary streams. As per the Department of Higher Education, Government of Orissa, this may be due to a preference among

the students for courses that have better employment prospects. An increase in the different fees need not be a deterrent insofar as the courses being studied are in demand from the job market perspective.

5.7 Availability of School Facilities

The availability of school facilities and quality of infrastructure have a strong bearing on the efficiency—internal and external—of the system, influencing enrolment/ non-enrolment, dropout/ retention and achievement levels. The positive association between school facilities and pupil achievements is stronger in the educationally backward states of Orissa and Madhya Pradesh (PROBE Team 1999).

5.7.1 Number of Schools

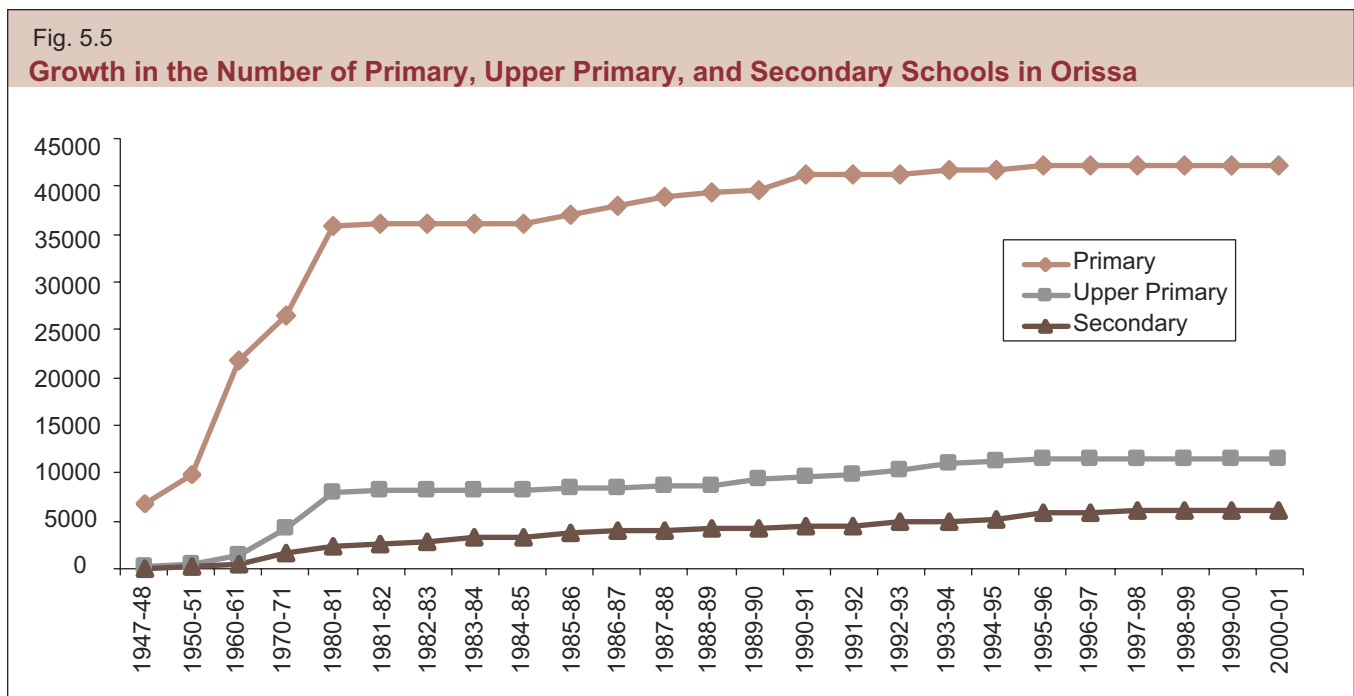
After independence, there has been a substantial growth in the number of schools in the state. In 1947–48, the primary, upper primary, and secondary schools in the state numbered 6,814; 286; and 106 respectively. By 2000–01, this had increased substantially to 42,104; 11,510, and 6,165 respectively (Table 5.16 and Fig. 5.5). Interestingly, between 1947–48 and 1986 (when the National Policy on Education was formulated), the number of primary schools in the state has increased at a compound growth rate of 4.4 per cent per annum. During the post-policy period, however, the rate of growth fell to a mere 1.63 per cent. Similarly, the rates of growth of upper primary and secondary schools during the pre-policy period were much higher than the post-policy period. For the promotion of Sanskrit, the state has 354 Sanskrit tolls and 25 Sanskrit colleges. The number of students enrolled in the above Sanskrit tolls and colleges were 21,127 and 2,364 respectively, in 2002 and 2003.

Table 5.16
Growth in the Number of Schools in Orissa

Year	Primary	Upper Primary	Secondary	Primary to Upper Primary Ratio
1947–48	6,814	286	106	23.8
1950–51	9,801	501	172	19.6
1960–61	21,858	1,307	452	16.7
1970–71	26,462	4,193	1,665	6.3
1980–81	35,893	7,958	2,443	4.5
1981–82	36,193	8,107	2,619	4.5
1982–83	36,193	8,175	2,902	4.4
1983–84	36,193	8,212	3,220	4.4
1984–85	36,193	8,316	3,360	4.4
1985–86	36,993	8,436	3,657	4.4
1986–87	38,004	8,532	3,955	4.5
1987–88	38,793	8,636	4,099	4.5
1988–89	39,293	9,125	4,239	4.5
1989–90	39,793	9,232	4,311	4.2
1990–91	40,293	9,562	4,475	4.3
1991–92	41,204	9,818	4,495	4.2
1992–93	41,204	10,412	4,921	4.0
1993–94	41,604	10,920	4,921	3.8
1994–95	41,604	11,360	5,231	3.7
1995–96	42,104	11,510	5,808	3.7
1996–97	42,104	11,510	5,808	3.7
1997–98	42,104	11,510	6,072	3.7
1998–99	42,104	11,510	6,072	3.7
1999–2000	42,104	11,510	6,094	3.7
2000–01	42,104	11,510	6,165	3.7
Compound Annual Growth Rate (per cent)				
2001/1947	3.43	7.08	7.81	
1986/1947	4.39	8.86	9.47	
1990/1986	1.63	2.30	2.50	
2001/1986	0.68	2.02	3.00	
2001/1990	0.20	1.70	2.16	

Source: (i) Directorate of Elementary Education, Government of Orissa, Bhubaneswar.
(ii) Directorate of Mass Education, Government of Orissa, Bhubaneswar





Source: (i) Directorate of Elementary Education, Government of Orissa, Bhubaneswar.
(ii) Directorate of Mass Education, Government of Orissa, Bhubaneswar.

5.7.2 Habitations Served and Unserved

As per the national norms agreed to by the state government, a primary school is required to be provided in all habitations having a minimum population of 300 and within a walking distance of one kilometre. The norm is 200 people in the case of habitations located in hilly areas and in the case of minority population. According to the Sixth All-India Educational Survey (1993), there were 73,148 habitations in the state of which 60,289 (82.42 per cent) had primary schooling facility within one kilometre of walking distance from the home of the child. The number of unserved habitations was the highest (1,169) in Koraput district, while Rayagada district had the percentage of unserved habitations (35.40 per cent) in. Similarly, the lowest number of unserved habitations was found in Sonepur district (78), while Kendrapara district had the lowest percentage of such habitations (5.58 per cent). About 16 per cent of the habitations with predominantly Scheduled Caste population and 27 per cent of the habitations with predominantly Scheduled Tribe population did not have a school within a distance of one kilometre.

As per a recent estimate, there are 11,655 habitations without primary schools. Based on the Tapas Majumdar Committee (Government of India 1999b) estimate, the state needs 50,098 primary schools in the state by 2010 to provide schooling facilities to all the children up to the age of 14 years. Presently, there are 42,104 primary schools in the state, and thus an additional number of 7,994 primary schools need to be opened.

However, the state government, instead of opening primary/ upper primary schools has recently decided to open alternate schools by appointing new teachers for a short period (*Sikshya Samasya* 2002). In order to meet the increasing demand for school locations, national planners have been resorting to creation of alternate schools, satellite schools, non-formal centres, and so on. These alternate provisions are invariably small, single-teacher schools with very little academic infrastructure. Such schools often employ locally available instructors, who may be underqualified and underpaid. In many cases, the teachers' monthly emoluments are lower than the minimum wage officially prescribed for skilled

workers. It is the children of the poor who are enrolled in such alternative schools. Fairness demands that the poor have access to equally endowed schools as the not-so-poor, and should perhaps be given better provisions in order to compensate for the poor endowment at home.

The Government of Orissa has set a norm of opening one upper primary school within a distance of three kilometres in every habitation having a population of 500. As per the Sixth All-India Educational Survey (1993), the number of secondary schools in the state is 5,301. The report points out that 23.67 per cent of the habitations (and 13.68 per cent of the population) did not have secondary schools within a distance of five kilometres. Further, 12.76 per cent of the habitations (and 6.39 per cent of the population) did not have high schools within a distance of eight kilometres.

5.7.3 Building and Infrastructure Facilities

As per the Sixth All-India Educational Survey, the state had 36,306 independent primary schools and 4,819 primary sections in other schools. Of the independent primary schools in the state, 21,390 (58.92 per cent) primary schools had pucca buildings, 734 primary schools had no rooms, and 991 schools were run in the open. There were 6,509 primary schools that operated from a single room, while 13,061 schools had premises with two rooms (Government of Orissa 2000b).

The quality of infrastructure facilities in the schools is far from satisfactory. According to the Sixth All-India Educational Survey (1993), less than one-third of the primary schools in rural areas had drinking water facilities and less than 15 per cent had proper toilet facilities. The Operation Blackboard programme might have improved the facilities, but the situation was far from satisfactory. Many children, particularly girls, drop out of school due to the absence of toilet and drinking water facilities. The results from National Sample Survey and the National Family Health Survey have shown that infrastructure facilities in schools

have a significant influence on the enrolment/ non-enrolment and dropout rates (Tilak 2004).

5.7.4 Others

From the perspective of universalisation of elementary education, there is perhaps a need to review the Orissa pattern of upper primary education (comprising Class VI and VII) vis-à-vis the national pattern of three classes, comprising Classes VI, VII, and VIII. Further, instead of opening new formal schools (primary and upper primary), schools are being set up under the Education Guarantee Scheme (EGS) introduced in the state in the year 2001–02 (in place of non-formal education). Currently, there are 4,722 EGS schools at the primary and upper primary levels in the state.

The policy-makers must choose between expanding the availability of education and providing high-quality schools. High-quality schools raise students' achievement and speed students through primary (and perhaps secondary) schools.

5.8 ST & SC Development Department Schools

In order to spread education among the backward sections of the society, the ST & SC Development Department has undertaken a number of special measures. These include the establishment of schools (both in the scheduled and non-scheduled areas), provision of scholarships to meritorious students, supply of books, reading and writing materials and uniforms.

Presently, a total of 1,541 schools are functioning under the ST & SC Development Department. Of these, 218 (14.15 per cent) are high schools, 149 (9.67 per cent) are *ashram/kanyashram* schools, 143 (9.28 per cent) are *residential sevashram* schools and 1031 (66.90 per cent) are *non-residential sevashram* schools.

Of the 236,102 SC and ST students enrolled in all categories of schools, 40.84 per cent are girls. The

Gender Parity Index in these schools, particularly at the primary level, is low (0.80) as compared to the schools run by the School and Mass Education Department (0.91). It may be mentioned here that, in these schools the Gender Parity Index was only 0.56 in 1999, which slowly but steadily increased to 0.69 in the year 2003–04. The difference in the Gender Parity Index between the residential *sevashram* schools and non-residential *sevashram* schools can be seen from Annexure Table 10. The boys enrolment decreased from 142,311 in 1999–2000 to 139,679 in 2003–04 (-1.85 per cent), whereas the girls enrolment increased from 79,403 to 96,423 in the same period (21.43 per cent).

5.9 Schools by Management

Until 1989, a large majority (91.4 per cent) of primary schools in the state were managed by the local bodies, with the rest being government and private (aided and unaided) schools. The private unaided schools constituted a negligible proportion. In 1989, the Government of Orissa decided to take over almost all the schools managed by the local bodies. The Sixth All-India Educational Survey in 1993 shows that 92.45 per cent of the primary schools were managed by the government, 6.50 per cent by the local bodies, 0.76 per cent were private aided schools, and 0.29 per cent were private unaided schools. District-wise analysis shows that in almost all the districts, the percentage of government schools was found to be more than 90, with the percentage of private aided and private unaided schools being negligible.

The most significant change is the shift in management from local bodies to the government. This happened amidst the talk of decentralisation and the need to shift the responsibilities of school education from the government to the local bodies. The 73rd and the 74th Amendments to the Constitution of India mandates that the states should give responsibilities and powers relating to primary education to local bodies, specifically to Panchayati Raj institutions.

In the case of upper primary schools, the percentage

of schools managed by the government was 89.96 in 1993, with private aided schools (5.00 per cent), private unaided schools (3.06 per cent), and local body schools (1.98 per cent) trailing far behind. Gajapati district had the lowest percentage of upper primary schools (and primary schools) managed by the government, and the highest percentage of schools managed by the local bodies.

In the case of high schools, in contrast, the percentage of private schools in Orissa was 73.60 in 1993, comprising 50.83 per cent private aided schools and 22.77 private unaided schools. The percentage of government high schools was only 23.33 (against 89.96 per cent in the case of upper primary schools and 92.45 per cent in the case of primary schools). Similar to the case with primary and upper primary schools, high schools managed by local bodies constituted a small share, namely 3.07 per cent. Kendrapara district had the lowest percentage of government high schools (7.02 per cent) and the highest percentage of private aided schools (67.37 per cent). The highest percentage of private unaided schools (33.33 per cent) was found in Nuapada district. As per the Sixth All-India Education Survey, out of 5,310 high schools, the percentage of all-girls high school was only 10.79 (573 in number) as against 89.21 per cent (4,737 in number) co-educational high schools. The private aided (44.68 per cent) and private unaided (19.20 per cent) girls' high schools constituted about 64 per cent of the total number of girls' high schools in the state (Annexure Table 11).

Management-wise, the data from the Orissa Primary Education Programme Authority (OPEPA) indicates that 2.59 per cent of the total number of children enrolled in primary schools were in private schools (1.65 per cent in private unaided schools and 0.94 per cent in private aided schools). The numbers are larger in the case of upper primary schools. Nearly 3.83 per cent of the children in upper primary schools go to private aided schools and 6.4 per cent to private unaided schools. The government schools

account for 86.67 per cent of the enrolment at the upper primary level, while the corresponding figure was 95.79 per cent at the primary level (Annexure Table 12). Only 28.20 per cent students were enrolled in government high schools, whereas 50.80 per cent students were enrolled in private aided high schools and 17.48 were enrolled in private unaided schools.

The Government of Orissa aims to achieve the goal of universalisation of elementary education through formal and non-formal education. The objective of the non-formal education (NFE) scheme is to impart minimum levels of learning and to create awareness among children in the 6–14 years age group. During 2000–01, around 23,448 non-formal education centres at the primary level and 896 centres at the upper primary level were functioning in the state. Apart from this, 198 voluntary organisations were also managing 11,863 non-formal education centres with full Central government assistance. The enrolment in the primary level centres was 5.86 lakhs and in the upper primary level centres was 0.22 lakhs during the year 2000–01 (Government of Orissa 2001a). Since the timing and functioning of the non-formal education centres is flexible, it is expected that it would be convenient for the working children to attend these centres.

School autonomy reform is one type of decentralisation reform. Compared with traditionally managed schools, these schools have lower teacher and student absenteeism and comparable student achievement, holding the characteristics of student constant (King and Orazem 1999). Expanding primary schooling by directly subsidising private schools has beneficial impact. Subsidy, if any, should be to induce private investment in rural areas than in urban areas.

5.10 Teachers and Student–Teacher Ratio

Amongst the various factors that influence the quality of education and determine its contribution to national development, the quality and character of teachers are undoubtedly the most significant (Education Commission 1968). Teachers occupy a

vital position in the education system and contribute to its efficiency and effectiveness (Panda 2004).

During the period 1947–48 to 2000–01, there has been a significant increase in the number of teachers in primary, upper primary, and secondary schools. The number of teachers in primary schools in 2000–01 was 114,791 as against 16,520 in 1947–48. Similarly, in upper primary and secondary schools, the number of teachers in 2000–01 were respectively 38,914 and 51,570 as against 1,483 and 1,505 in 1947–48 (Table 5.17). The percentage of women teachers in the state is very low though recruitment of women teachers is known to be important for promoting participation of girls in schools. The norm envisages that at least 50 per cent of the total teachers are to be women. The percentage of female teachers in primary, upper primary and secondary schools in 2000–01 was 33, 15, and 21 respectively.

The increase in the number of teachers has not kept pace with the increase in enrolment (Table 5.17). As a result, the student–teacher ratio in primary schools increased from 15 in 1947–48 to 41 in 2000–01. In order to improve the quality of education, reduce dropouts and increase retention, a small student–teacher ratio is necessary. Student–teacher ratios in India are quite high and hence it may be desirable to have a student–teacher ratio in primary schools at around 25 (Government of India 1999b). Presently, the state government has a goal of achieving a student–teacher ratio of 35, i.e., one teacher per 35 students in primary schools. Student–teacher ratios in upper primary schools and high schools in the state are, however, reasonably good.

Apart from the number of teachers and the student–teacher ratios, the quality of teachers is also of great importance. To improve the quality of education at different levels training of teachers is an absolute must. According to the Sixth All-India Educational Survey, 92 per cent of the teachers in primary schools in Orissa were trained, while the figure was 87 per cent in upper primary schools and 85 per cent



Table 5.17
Teachers, Proportion of Female Teachers, and Student–Teacher Ratio in School Education in Orissa

Years	Primary			Upper Primary			Secondary		
	Total	Female teachers (per cent)	Student–teacher ratio	Total	Female teachers (per cent)	Student–teacher ratio	Total	Female teachers (per cent)	Student–teacher ratio
1947–48	16,520	1.60	15	1483	6.07	22	1,505	6.0	10
1950–51	16,525	1.96	19	2569	6.03	16	2,247	5.4	7
1960–61	37,328	2.23	38	5587	6.30	19	4,823	7.8	9
1970–71	54,093	5.12	35	13,519	3.99	24	18,487	11.3	10
1980–81	80,919	10.32	34	23,866	9.94	25	26,207	15.3	12
1981–82	81,369	10.56	35	23,936	10.12	26	27,755	15.5	14
1982–83	81,369	10.56	37	23,948	10.13	28	29,109	15.6	15
1983–84	81,869	11.24	37	24,376	10.06	29	30,922	16.7	12
1984–85	82,619	12.26	39	24,584	10.06	32	34,283	15.5	11
1985–86	84,219	14.45	39	25,016	10.06	32	34,426	15.6	12
1986–87	85,321	19.16	39	28,149	13.14	31	35,313	16.3	12
1987–88	89,410	25.57	38	35,382	13.42	26	37,360	16.9	19
1988–89	90,540	32.65	39	36,948	14.39	26	38,365	16.8	20
1989–90	91,720	32.65	38	36,995	14.47	27	38,725	17.0	20
1990–91	93,992	32.65	38	37,349	14.47	27	39,873	17.1	19
1991–92	98,108	32.65	37	37,709	14.47	28	40,020	18.4	19
1992–93	102,012	33.75	36	37,959	14.47	29	44,289	21.0	18
1993–94	105,340	33.72	36	38,159	14.47	30	44,425	21.0	18
1994–95	105,840	33.93	36	38,201	14.47	31	45,785	20.8	16
1995–96	110,540	32.65	35	38,414	14.71	33	47,096	21.0	17
1996–97	111,040	32.93	36	38,914	14.71	22	50,218	21.1	17
1997–98	111,040	32.93	36	38,914	14.71	26	51,436	21.2	17
1998–99	111,040	32.93	37	38,914	14.71	27	51,436	21.2	20
1999–2000	114,791	32.93	40	38,914	14.71	28	51,538	21.2	20
2000–01	114,791	32.93	41	38,914	14.71	27	51,570	21.2	21
2001–02	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002–03	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003–04	96,175	33.68	44	28,342	14.99	30	NA	NA	NA

Note: NA: Not available.

Source: (i) Office of the Directorate of Elementary Education, Government of Orissa, Bhubaneswar.
(ii) Office of the Directorate of Mass Education, Government of Orissa, Bhubaneswar.

in secondary schools. The proportion of untrained teachers has gradually declined over the years (Table 5.18). The recent information suggests that almost all teachers in primary and upper primary schools are trained teachers.

5.11 Vocational Education

The Government of Orissa has been implementing the vocational education programme at the higher secondary level (+2) since 1988–89, initially with financial assistance from the Government of

India under the centrally sponsored scheme. The programme envisages vocational courses at the higher secondary level in high schools and colleges (government and non-government institutions). At present, the total number of government higher secondary vocational schools (GHSVs) in the state is 231, which includes 72 functional schools, 80 partially functional schools and 79 non-functional schools. By 2001, 18,503 students had enrolled in different GHSVs. The average annual compound rate of growth of enrolment of students during the period 1990 to 2001 was found to be negative, at -7.99 per cent. In 2001, there was a sudden decline in the enrolment of students, i.e., 631 as against 1062 in the year 2000. The pass percentage was highest in the year 1992 (72.3 per cent) and lowest in the year 1996 (20.0 per cent) (Annexure Table 13).

The trades/courses offered, the number of students enrolled, number of students who appeared in examinations and passed from the 152 GHSVs (72 of which are presently functional and 80 which were functional in some years) as well as their employment status are given in Annexure Table 14. The main reasons for the poor enrolment of students in the GHSVs are: (i) non-availability of infrastructure facilities like laboratory, workshop, furniture; (ii) lack of adequate and trained resource persons; (iii) lack of interest among students and parents as there are not many job opportunities after completion of the course; (iv) lack of awareness among students

and parents in the locality; (v) non-conduct of examinations on time; and (vi) no scope for higher education. The above reasons are also responsible for the poor pass rate of students (Kar, Behera and Mohanty 2002).

The other important reasons for the low enrolment of students in these schools are the poor publicity of the courses offered and the lack of commitment on part of the full-time and part-time resource persons. However, after the state government decided to bring all the GHSVs under the purview of the +2 colleges, the pass percentage in these schools improved significantly, from 72.3 per cent in 1992 to 93.87 per cent in 2003.

5.12 Educating Child Labour

The magnitude of child labour is very high in Orissa. While education as an alternative to child labour is now accepted as a well-established strategy, it can be successful only if working children are retained in schools till the minimum age prescribed under law for admission to employment. In this context, non-formal education centres alone cannot fulfil this objective and it must be linked effectively with the formal education system (ILO 1998).

In Orissa, the National Child Labour Project (NCLP) is functioning to rehabilitate child labourers in 18 districts. For educating the child labour, there were 682 special learning centres operating in the state in 2001. The number of child labourers admitted in the special learning centres was 37,516, and the number of child labourers mainstreamed to formal schools was 19,514 (52.02 per cent of the child labourers admitted) (Annexure Table 15).

The NCLP districts in Orissa are mostly tribal-dominated, less accessible, and educationally backward areas. Most of the child labourers in the tribal-dominated districts of the state are engaged in cattle grazing, agriculture, and forest-

Table 5.18

Percentage of Trained Teachers in School Education in Orissa

Level of Education	1965 Second Survey	1973 Third Survey	1978 Fourth Survey	1986 Fifth Survey	1993 Sixth Survey
Primary	59.99	77.19	75.49	86.80	91.99
Upper Primary	31.24	34.55	54.65	75.07	87.49
Secondary	50.12	60.37	67.65	75.40	85.02
Total	54.25	67.37	70.19	81.90	87.59

Source: Government of Orissa (2000), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.



related work. The majority of the child labourers in Bhubaneswar and other towns are engaged in rag-picking, shoe-shining, vending edible items and in hotels and catering houses (Behura and Mohanty 1998; Meher 1997; Mishra 1997; Samal and Meher 1997). Most of the child labourers belong to SC, ST, and Other Backward Castes (OBC). Poverty is the main reason why parents send their children to work. Therefore, in Orissa, it is supply rather than demand that determines the number of child labourers in the state. This is caused by poverty and low social background.

There is a need for sustained economic growth which can raise the income of the weaker sections of society. This will help to alleviate poverty and thus may help families to retain their children in schools.

5.13 Finances for Education in Orissa

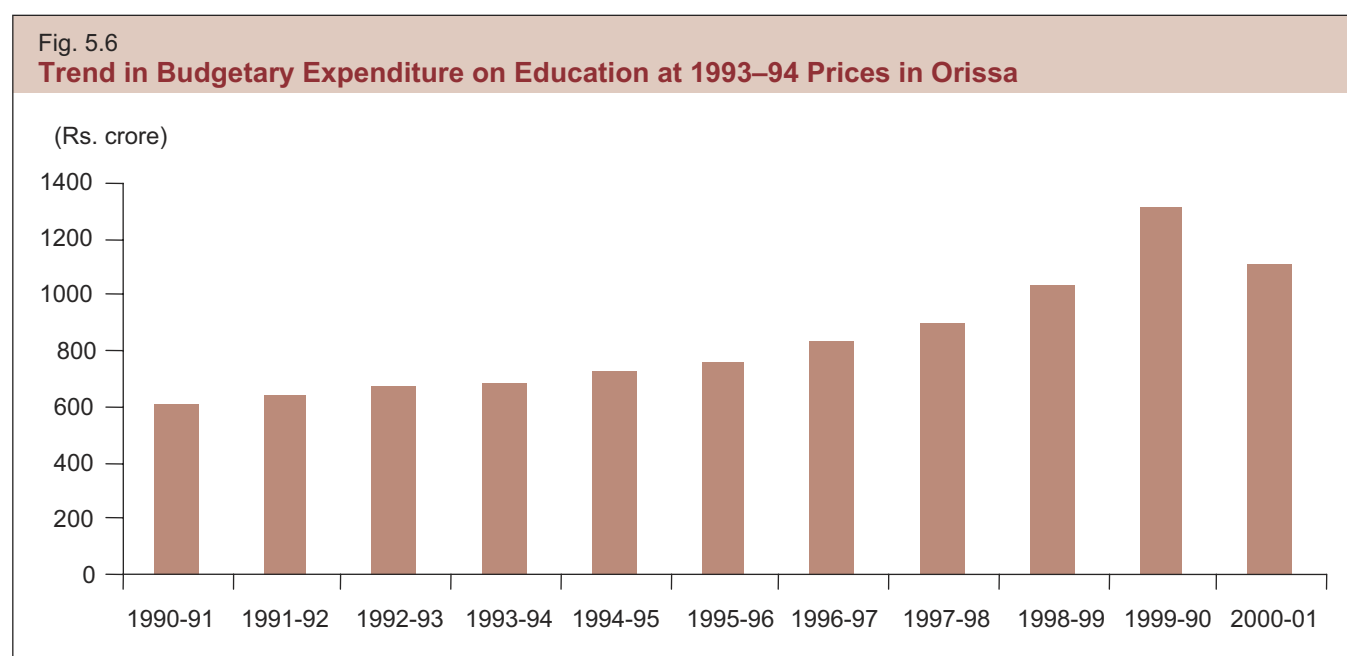
Public financing of education is an important tool for the government to further the development of education in society. Public financing clearly determines the growth of education, its nature and spread. Public finance also influences the extent of household and private sector expenditures on education.

5.13.1 Growth in Public Expenditure on Education

Public expenditure on education in Orissa has increased from Rs 43 million in 1960–61 to Rs 17,357 million in 2000–01, i.e., by over 400 times. But this increase is in nominal terms. The real increase (i.e., adjusted for increase in prices) would be very small. For example, between 1990–91 and 2000–01, the real increase in public expenditure on education in the state was only two per cent, while the nominal increase during the same period was four times. The growth of budgetary expenditure on education at 1993–94 prices during the period 1990–91 to 2000–01 can be observed from Fig. 5.6 and Table 5.19.

The level of expenditure on education is relatively very low. For example, at current prices, the state spent Rs 416 per capita on education in 1999–2000, while the corresponding figure at the national level was Rs 620.

Orissa spends about six per cent of its GSDP on education. This is commensurate with the goal at the national level to allocate at least six per cent of the national income to education. However, the progress in the percentage of expenditure on education to



Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

Table 5.19
**Budget Expenditure on Education
 in Orissa**

Year	At current prices (crore Rs) Rupees)	At 1993–94 prices (crore Rs)	Per cent of GDP	Per cent of total budget
1990–91	451.03	611.98	4.56	16.45
1991–92	539.01	642.44	4.21	16.38
1992–93	616.96	668.43	4.49	16.97
1993–94	681.44	681.44	4.30	16.75
1994–95	811.84	721.64	4.28	17.41
1995–96	928.38	763.47	3.99	18.05
1996–97	1,065.22	837.44	4.80	17.79
1997–98	1,195.09	899.92	4.36	18.69
1998–99	1,461.76	1,038.92	4.96	18.90
1999–2000	1,913.77	1,317.12	6.13	20.67
2000–01	1,735.72	1,114.78	5.64	17.95

Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

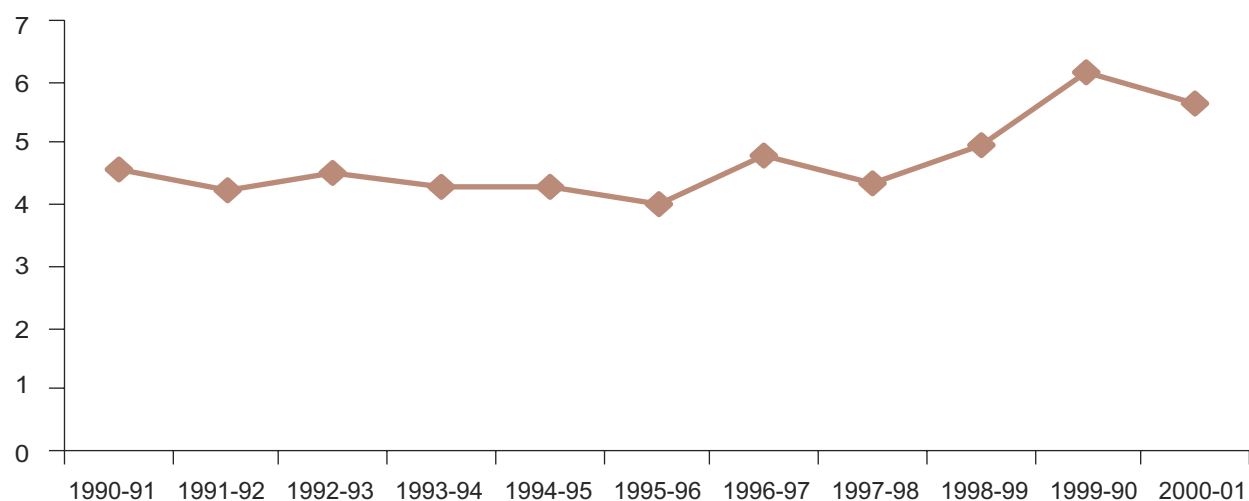
GSDP is not steady. Annual fluctuations are very wide (Table 5.19 and Fig. 5.7). It would be desirable to maintain the proportion at a level of at least 6 per cent continuously for a reasonable period.

The share of education in GSDP reveals the relative priority that a government accords to education. But a better measure could be the share of education in the government expenditure (or budget), as the government has more direct control over the budget than on the GDP. It is found that there is no continuous increase in the share of education in the total budgetary expenditure during the period 1990–91 to 2000–01. It was 16.45 per cent in 1990–91, reached a high of 20.67 per cent in 1999–2000 and then declined to 17.95 per cent in 2000–01 (Table 5.19). Given the low level of educational development and the increasing needs of the system, Orissa should aim for a steady flow of budgetary resources towards education and allocate over 25 per cent of the budgetary expenditure for it.

Another important factor that influences the development of education is the percentage of revenue expenditure spent on education. It was 19.44 per cent in 2000–01 as against 22.54 per cent in 1999–2000, which was the highest during the period 1990–91 to 2000–01. During 1990–91 to 1999–00, the percentage of revenue expenditure

Fig. 5.7

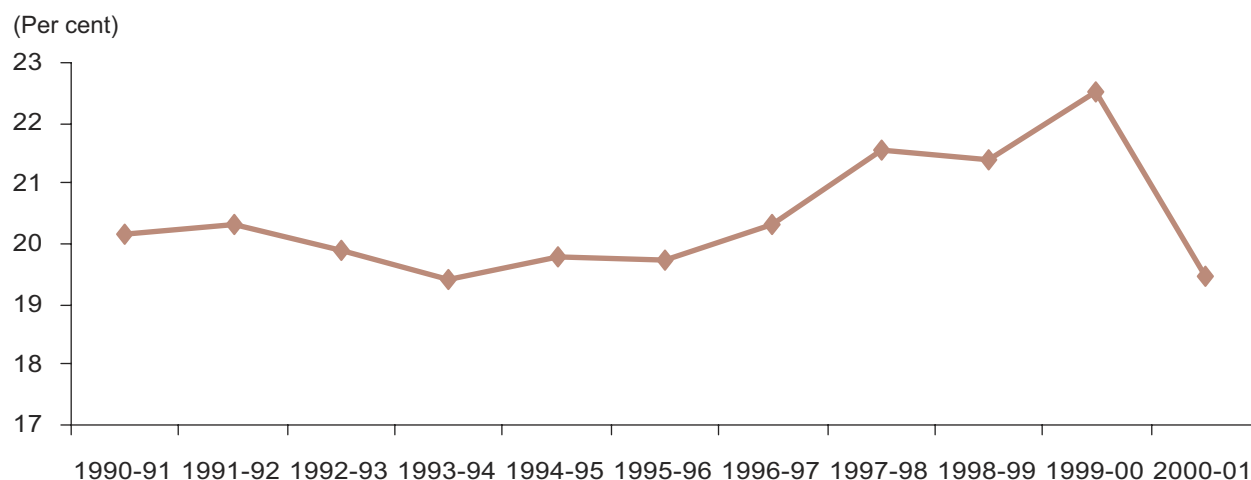
Trend in Percentage Share of Education Expenditure to State Domestic Product (SDP) in Orissa



Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

Fig. 5.8

Growth of the Percentage of Revenue Expenditure on Education to Total Revenue Expenditure in Orissa



Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

on education was found to be 20.82 per cent (Annexure Table 16). The growth of the percentage of revenue expenditure on education to the total revenue expenditure during 1990–91 to 2000–01 is shown in Fig. 5.8. In Orissa, this has not exceeded 22 per cent, while, during the same period, the percentages of revenue expenditure on education in Bihar, Kerala, Assam, West Bengal, and Rajasthan were 28, 30.4, 25.5, 30, and 26.5 respectively. In Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Gujarat and Maharashtra the share was about 24 per cent.

5.13.2 Growth in Expenditure on Elementary Education

Public expenditure on elementary education has increased from Rs 29 lakh in 1951–52 to Rs 1,041 crore in 2000–01. Even during the 1990s, public expenditure

on elementary education increased by more than five times from Rs 248 crore in 1990–91 to Rs 1,243 crore in 1999–2000. While this increase in nominal terms over a long period is impressive, the real increase,

Table 5.20

Public Expenditure on Elementary Education in Orissa

(in Rs crore)

Year	Expenditure	At 1993–94 prices	As per cent of GDP	As per cent of total state budget
1990–91	247.68	336.07	2.50	9.03
1991–92	313.07	373.15	2.44	9.51
1992–93	360.10	390.14	2.62	9.90
1993–94	390.01	390.01	2.46	9.59
1994–95	449.48	399.54	2.37	9.64
1995–96	509.43	418.94	2.19	9.90
1996–97	581.52	457.17	2.62	9.71
1997–98	683.04	514.34	2.49	10.68
1998–99	804.38	571.70	2.73	10.40
1999–2000	1243.19	855.60	3.99	13.43
2000–01	1040.85	668.50	3.38	10.77

Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

however, during this period was only 2.5 times (Table 5.20). More impressive than the rates of growth of expenditure (in nominal and real terms) is the relative share of expenditure of the state's income on elementary education.

5.13.3 Expenditure on Elementary Education per Student

Simple estimates of expenditure per student or unit costs, serve as a useful tool for analytical and planning purposes. They reflect, to some extent, the quality of education, as they indicate the real resources available to the students on an average. Though the total expenditure on elementary education in the state has increased by more than five times in nominal terms during the 1990s, the increase has not kept pace with the increase in enrolment or the increase in price index. As a result, per student expenditure on elementary education could increase only by 2.8 times in nominal terms.

Secondary education seems to have fared better (Table 5.21). It is essential to ensure that per student expenditure in real terms does not decline between

any two successive years. In fact, attempts should be made to have a steady increase in this expenditure, by spending more per student on quality and equity related inputs.

5.13.4 Inter-Functional Classification of Expenditure on Elementary Education

It is widely known that a large part of the total expenditure on education is incurred in the form of salaries to teachers and others. Recent data provides a classification of expenditure on education in Orissa, according to which, a large part (89 per cent) of the public expenditure on elementary education in the state is devoted to government schools. One can safely assume that about 95 per cent of this expenditure on government schools is towards salaries for teachers and others. Only two per cent of the budget on elementary education is devoted to direction, inspection, and administration. One per cent of the total is given to private schools in the form of aid. Non-formal education receives another one per cent. Development of textbooks accounts for another one per cent. A negligible amount of the elementary education budget is spent on teacher

Table 5.21
Per Student Budget Expenditure on Elementary and Secondary Education, Orissa

(in Rs)

Year	Elementary		Secondary	
	At current prices	At 1993–94 prices	At current prices	At 1993–94 prices
1990–91	531.8	722.17	617.3	838.26
1991–92	659.9	780.73	1258.2	1488.65
1992–93	705.0	764.19	1379.2	1495.05
1993–94	769.2	769.17	1611.0	1611.04
1994–95	869.3	764.87	1792.2	1576.82
1995–96	986.3	747.82	1954.5	1481.96
1996–97	1109.5	818.24	2085.8	1538.22
1997–98	1293.8	787.19	2289.7	1393.11
1998–99	1480.9	929.93	3182.4	1998.34

Source: Based on (i) Government of India, *Selected Educational Statistics*, Department of Education, New Delhi, various years; (ii) Government of Orissa, *Analysis of Budgeted Expenditure on Education*, Ministry of Human Resource Development, Bhubaneswar, various years; and (iii) Government of Orissa, *Economic Survey*, various years.

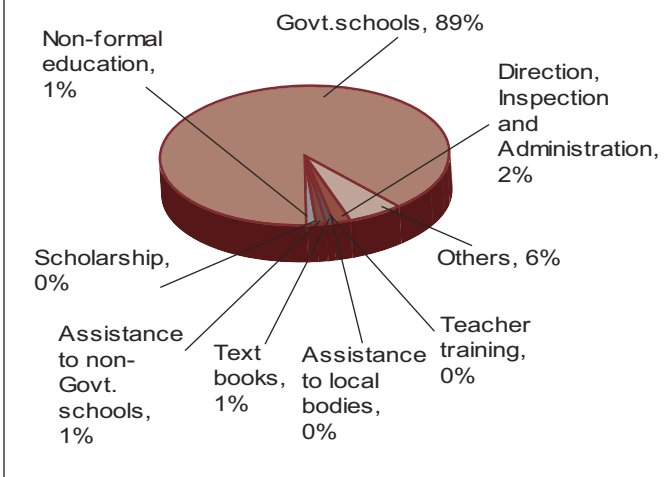


training and scholarships (Fig. 5.9). This has been the existing pattern for quite some time. Available research shows that allocations to quality related

inputs such as teachers' training and provision of textbooks, stationery and other classroom teaching and learning material would pay rich dividends in the form of improved levels of participation of children in schooling, lower rates of dropout and higher rates of achievement. But only a negligible amount of the budgetary resources are allocated to these in Orissa as in many other states in India.

Fig. 5.9

Budget Expenditure on Elementary Education by Objects, 1998–99



Source: Government of India, *Selected Educational Statistics*, Department of Education, Ministry of Human Resource Development, New Delhi.

5.13.5 Additional Resources Required for Universalising Elementary Education

The Tapas Majumdar Committee made a detailed estimate of the financial requirement of various states towards universalisation of elementary education. According to this, Orissa would require, in the ten year period from 1999–2000, Rs 5,698 crore additionally—Rs 3,921 crore for primary education and Rs 1,777 crore for upper primary education (Table 5.22).

Table 5.22
**Additional Requirement of Resources for Universalisation of
 Elementary Education, Orissa**

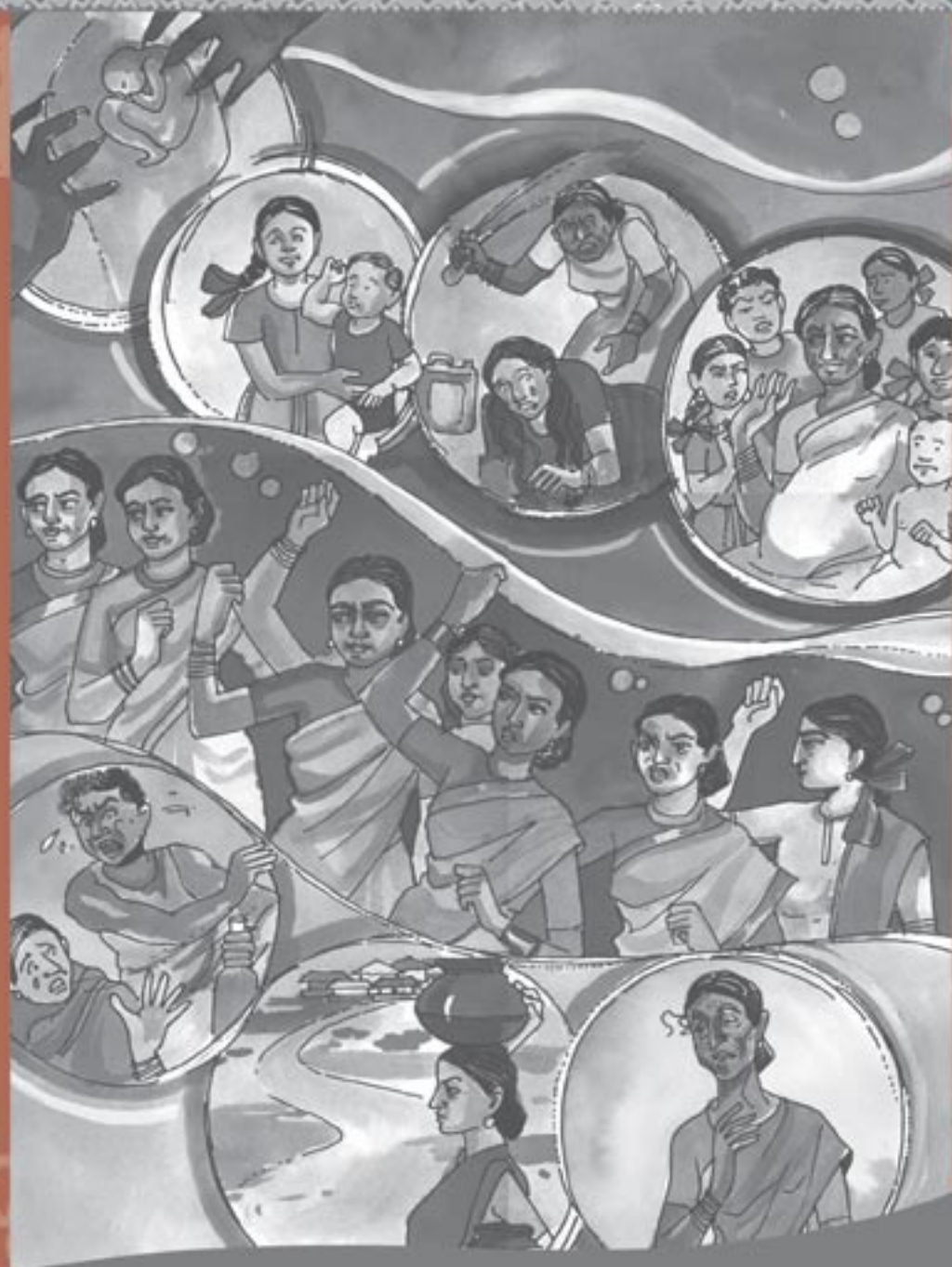
(in Rs crore)

Item	Primary	Upper Primary	Total
Access and retention: Non-recurring costs			
Construction of schools with community supervision	381.35	532.62	913.97
Provision of school equipment by decentralised procurement	12.95	64.76	77.71
Establishment of new DIETs and upgradation of existing DIETs	3090		3090
Establishment of cluster centres	7.52	3.76	11.28
Establishment of block resource centres	21.98	601.34	623.32
Access and retention: Recurring costs			
Teachers salaries	0	350.47	350.47
Teachers support material and aids	7.52	6.29	13.81
Maintenance and repair of school infrastructure with community support	15.03	12.52	27.55
Provision for sustainable replacement/repair/maintenance of school equipment	15.03	12.52	27.55
Salaries of DIET staff	77.40		77.40
Salaries of block level institutions	5.46		5.46
Access and retention: Special needs—Non recurring costs			
Integrated education for disables children	49.48	32.32	81.80
Access and retention: Special needs—Recurring costs			
Teachers for disabled children	30.06	15.03	45.09
Access and retention: Incentive—Recurring costs			
Free uniforms	51.55	33.67	85.22
Mid-day meals	41.24	26.94	68.18
Scholarships	51.55	33.67	85.22
Teaching and learning equipment for students	32.99	40.41	73.40
Curriculum and textbooks: Non recurring costs			
Curriculum and textbooks improvement	0.15	0	0.15
Curriculum and textbooks: Recurring costs			
Teacher Training	10.52	6.28	16.80
Teachers' Support and Aids	5.01		5.01
Community based monitoring supervision and research	2.60		2.60
Advocacy environment building and mobilisation	2.60		2.60
Classroom observations by resource persons	9.01	4.51	13.52
Total	3,921.00	1,777.11	5,698.11

Note: DIET: District Institute of Education and Training

Source: Government of India (1999b), *Expert Group Report on Financial Requirements for Making Elementary Education a Fundamental Right*, Ministry of Human Resource Development, New Delhi.

CHAPTER 6 **The Gender Question**





The Gender Question

Human development necessarily encompasses the issue of gender inequality. There are gender gaps in connection with rights, access, and control of resources in economic opportunities as well as for power and political representation. In no country do men and women have equal social, economic, and legal rights. Women still possess less of a range of productive resources, including land, education, and financial resources (World Bank 2000). Gender inequalities lead to higher levels of malnutrition, poverty, illness, and other deprivations, with an adverse impact on the quality of life, productivity of farms and enterprises, and governance.

Factors that lead to gender disparities in many countries include, among others: (i) social institutions such as norms, rights, and laws as well as economic institutions such as segmented labour markets; (ii) household decisions and the resulting resource allocations; and (iii) economic policies that affect the level of household income and its distribution among household members (World Bank 2000).

The number of females in Orissa in 2001 was 18,094,580, constituting 49.29 per cent of the total population in the state. Compared to the all-India level, the state has a relatively favourable sex ratio of 972 females per 1000 males. According to the Ministry of Health and Family Welfare, Government of India, for the year 2001–02, the female life expectancy at birth in Orissa, at 59.71 years, is slightly lower than that for the males (60.05 years) and is much lower than the all-India average (63.87 years for males and 66.91 years for females). On the other hand, for the year 2000, the infant mortality rate per 1000 live births in Orissa is 98 for males and 92 for females, whereas these are respectively

67 and 69 at the all-India level (Government of India 2003, pp. 6–109).

6.1 Demographic Features

Between 1901 and 1961, the sex ratio, that is, the number of females per 1000 males, was quite favourable for the female population of Orissa. However, from 1971 till 1991 the sex ratio saw a declining trend. In the next decade, the sex ratio marginally improved from 971 females per 1000 males in 1991 to 972 females per 1000 males in 2001 (Table 6.1).

In 1901, Keonjhar, Koraput, Malkangiri, Nabarangpur, Rayagada, and Sundargarh had a sex ratio less than 1000. All the other districts had a favourable sex ratio till 1941. For the state as a whole, as also for most districts, the sex ratio started declining steadily from 1931. By 2001, all but six districts had an unfavourable sex ratio. This is particularly true of Angul, Balasore, Cuttack, Khurda, Sambalpur, and Sundargarh districts, all of which are relatively more urbanised and industrialised.

The district-wise sex ratio trend in all age groups of population vis-à-vis 0–6 years age group population of 2001 (Table 6.2) highlights the worsening situation of the female population. At the state level, while the sex ratio for all age groups of population is 972 females per 1000 males, it comes down to 950 females per 1000 males in the 0–6 year age group of population. At the district level, the situation is worse in the case of developed coastal districts such as Balasore, Bhadrak, Cuttack, Ganjam, Jagatsinghpur, Jajpur, Kendrapara, Khurda, Nayagarh, and Puri, and also in the central tableland districts of Dhenkanal and Angul. It appears that better access to sex determination tests through ultrasound and



Table 6.1

Sex-ratio (Number of females per 1000 males) since 1901 for State and Districts

Sl. No.	State/ District	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Orissa	1037	1056	1086	1067	1053	1022	1001	988	981	971	972
1.	Bargarh	1018	1029	1033	1044	1035	1022	1013	995	989	979	976
2.	Jharsuguda	1018	1029	1033	1044	1035	1016	977	959	954	938	946
3.	Sambalpur	1018	1029	1033	1044	1035	982	977	959	958	956	970
4.	Deogarh	1018	1029	1033	1044	1035	1019	1001	977	969	982	980
5.	Sundargarh	959	988	1004	1013	1017	1012	915	942	931	936	957
6.	Keonjhar	983	1004	1032	1028	1011	995	982	977	983	974	977
7.	Mayurbhanj	1013	1011	1015	1011	1005	1001	991	987	989	979	980
8.	Balasure	1065	1087	1098	1058	1024	952	956	965	965	955	949
9.	Bhadrak	1065	1087	1098	1058	1024	1046	1000	983	996	985	973
10.	Kendrapara	1068	1101	1159	1112	1084	1038	1020	1011	1000	1007	1014
11.	Jagatsinghpur	1068	1101	1159	1112	1084	1052	1049	1017	985	977	962
12.	Cuttack	1068	1101	1159	1112	1084	986	946	947	937	922	938
13.	Jajpur	1068	1101	1159	1112	1084	1056	1027	1006	995	977	973
14.	Dhenkanal	1020	1035	1074	1053	1030	1029	1001	980	967	954	962
15.	Angul	1020	1035	1074	1053	1030	1005	980	975	949	942	941
16.	Nayagarh	1009	1023	1097	1078	1082	1048	1021	994	972	958	939
17.	Khurda	1009	1023	1097	1078	1082	1046	1015	964	942	903	901
18.	Puri	1009	1023	1097	1078	1082	1001	984	979	972	970	968
19.	Ganjam	1119	1159	1223	1191	1169	1127	1092	1045	1033	1006	1000
20.	Gajapati	1119	1159	1223	1191	1169	1041	1027	1026	1023	1027	1031
21.	Kandhamal	1013	1013	1018	1022	1021	1025	1025	1013	1005	999	1008
22.	Boudh	1013	1013	1018	1022	1021	998	990	989	988	987	985
23.	Sonepur	1042	1030	1028	1025	1020	1012	1006	993	984	979	966
24.	Balangir	1042	1030	1028	1025	1020	1010	999	993	995	981	983
25.	Nuapada	1004	1024	1031	1035	1035	1011	1019	1011	1013	1002	1006
26.	Kalahandi	1004	1024	1031	1035	1035	1023	1020	1010	1009	999	1000
27.	Rayagada	966	999	1000	1004	996	1008	1010	1004	1020	1012	1029
28.	Nabarangpur	966	998	1000	1004	996	984	982	983	991	989	992
29.	Koraput	966	999	1000	1004	996	981	981	978	988	991	998
30.	Malkangiri	966	998	1000	1004	996	1015	998	936	962	985	996

Source: Government of India (2001), *Census of India, Provisional Population Totals, Series-22: Orissa*, Directorate of Census Operations, Orissa.

amniocentesis techniques has resulted in female infanticides in large numbers during the early stages of pregnancy. This is probably the reason why the developed pockets of the coastal region, and Angul and Dhenkanal districts of the central tableland

region, having cultural affinity and kinship ties with the coastal developed pockets, have shown such an adverse distribution of males and females in 0–6 year age group. Agnihotri (2002, p. 185) shows that a sharp decline in the urban female–male ratio



(for 0–6 year age group) between 1999 and 2001 has occurred in districts falling in a more or less contiguous belt. These districts are Jagatsinghpur, Jajpur, Dhenkanal, Angul, Nayagarh, Khurda, Ganjam, Boudh, and Kandhamal. Agnihotri (2002, pp. 186–7) points out that sex selective abortion is occurring among the relatively prosperous groups in the urban areas. It is important to note here that much of the tribal-dominated districts of south-central, south-east, as well as north-west Orissa are free from this phenomenon.

The lower sex ratio in the 0–6 year age group of population as compared to the overall sex ratio in Orissa, and the developed coastal belt in particular, is a clear manifestation of gender bias. The sex ratio in the 0–6 year age group of population is least affected by the selective male migration factors. According to the latest estimate, infant mortality rate of female population in Orissa per 1000 live births is lower than that for the male population, and the life expectancy of females at the all-India level is higher than that of males. Hence, it is not biological factors, but rather cultural and social factors that have been causing the deterioration in sex ratio in a backward state like Orissa. Interestingly, this gender-based discrimination of female population has been taking an acute form in the developed coastal plains and in their vicinity.

In fact, all other factors being equal, the female foetus and female children are biologically sturdier compared to their male counterparts. However, in the patriarchal social set-up, the social institutions and norms are constituted in such a manner that women are socially and legally deprived of their natural rights. In India (and also in Orissa), the human society has evolved in such a manner that inequality is institutionalised not only on the basis of caste, or religion, but also on the basis of gender. These traditionally institutionalised inequalities go very much against the country's constitutional goal of an egalitarian, universalistic and democratic social order. As a result, gender based inequalities pervade all spheres of society and affect the planned

Table 6.2
**Sex Ratio: District-wise and
0–6 Year Age Group**

Sl. No.	District	2001	
		Sex ratio	
		All age groups	0–6 year age group
1	2	3	4
	Orissa	972	950
1.	Bargarh	976	954
2.	Jharsuguda	946	950
3.	Sambalpur	970	963
4.	Deogarh	980	962
5.	Sundargarh	957	974
6.	Keonjhar	977	963
7.	Mayurbhanj	980	954
8.	Balasore	949	934
9.	Bhadrak	973	940
10.	Kendrapara	1014	935
11.	Jagatsinghpur	962	917
12.	Cuttack	938	941
13.	Jajpur	973	932
14.	Dhenkanal	962	919
15.	Anugul	941	934
16.	Nayagarh	939	901
17.	Khurda	901	920
18.	Puri	968	921
19.	Ganjam	1000	928
20.	Gajapati	1031	963
21.	Kandhamal	1008	973
22.	Boudh	985	962
23.	Sonepur	966	961
24.	Balangir	983	967
25.	Nuapada	1006	970
26.	Kalahandi	1000	990
27.	Rayagada	1029	983
28.	Nabarangpur	992	1002
29.	Koraput	998	993
30.	Malkangiri	996	990

Source: Government of India (2001), *Census of India, Provisional Population Totals, Series-22: Orissa*, Directorate of Census Operations, Orissa.

Gender Development Index (GDI): A Measure of Gender Inequity

GDI is a simple measure of gender disparity based on income, health, and educational attainment parameters. The estimated value of GDI (0.546) for Orissa indicates a moderate level of gender development. As regards the individual parameters, it is noteworthy that gender inequity is much less with respect to education compared to health and income. This is consistent with the observed decrease in gender disparity in terms of literacy. Relatively high level of inequity in the case of the health parameter perhaps implies a higher illness burden as well as differential access to, and utilisation of, health care facilities. Finally, relatively high level of inequity in respect of income index implies restricted employment opportunities for women and discriminatory practices against them in the labour market.

Source: Chapter 8, Table 8.3.

development process. This is reflected in the social sector development status of women in Orissa.

6.2 Education

Gender inequalities in education and health are greater in low-income than in high-income countries. A mother's illiteracy and lack of schooling directly disadvantages her young children through poor quality of health care and high infant and child mortality and malnutrition. Mothers with better education are more likely to adopt appropriate health-promoting behaviour such as immunisation of young children. Low investment in female education thus tends to reduce a country's overall output.

Gender inequality in education directly affects economic growth by lowering the average level of human capital. In addition, growth is indirectly affected through the impact of gender inequality on investment and population growth (Klasen 2002).

6.2.1 Literacy

As per the 2001 census, out of a total population of 36.71 million, 20,053,785 persons (54.63 per cent)

are literate in the state. Of this, 12,118,256 (33.01 per cent of total population) are males and 7,935,529 (21.62 per cent of total) are females. The highest number of literates is found in Ganjam district, with the lowest number in Malkangiri district. Excluding the 0–6 year age group population, the literacy rate in the state as a whole is 63.61 per cent, comprising 75.95 per cent males and 50.97 per cent females. The male literacy rate in the state is thus 1.5 times higher than that for the females.

District-wise, literacy rate for all persons is highest (80.19 per cent) in Khurda district and lowest (31.26 per cent) in Malkangiri district. The male literacy rate is highest (91.75 per cent) in Balasore district and lowest (41.21 per cent) in Malkangiri district. Female literacy rate is the highest (71.06 per cent) in Khurda district and the lowest (21.02 per cent) in Nabarangpur district. The female literacy rate is very low in the highland and tribal districts of Balangir, Boudh, Gajapati, Kalahandi, Kandhamal, Koraput, Malkangiri, Mayurbhanj, Nabarangpur, Nuapada, and Rayagada (Annexure Table 19).

The literacy rate in Orissa since 1951 is shown in Table 6.3. This has increased steadily from 15.80 per cent to 63.61 per cent between the years 1951 and 2001. The trend is more or less similar for both males and females, if the increase in literacy rate is compared in terms of the percentage points. However, the gap between male and female literacy rate was quite high in the base year 1951, and despite significant improvement over the years gender disparity in literacy continues to prevail.

6.2.2 Gross Enrolment Ratio

Between 1947–48 and 1999–2000, there has been an improvement in Gender Parity Index (GPI), that is the ratio of number of girls to number of boys enrolled in schools. However, there exists a gender disparity in the gross enrolment ratios, both in primary and upper primary education.

Gross enrolment ratios for boys and girls in primary schools have increased, from 28.0 and 1.0 in 1947–



Table 6.3
Literacy Rate in Orissa, 1951–2001

Year	Persons	Males	Females
1	2	3	4
1951	15.80	27.23	4.52
1961	21.66	34.68	8.65
1971	26.18	38.29	13.92
1981	33.62	46.39	20.60
1991	49.09	63.09	34.68
2001	63.61	75.95	50.97

Note: Literacy rate for 1951, 1961 and 1971 relates to population aged five years and above. The rates for the years 1981 to 2001 relate to the population aged seven years and above.

Source: Government of India (2001), *Census of India, Provisional Population Totals, Series-22: Orissa*, Directorate of Census Operations, Orissa.

48 to 125.7 and 91.5 in 1999–2000, respectively. Similarly, in upper primary schools, gross enrolment ratios have increased from 6.0 and 0.4 to 66.6 and 43.8 respectively, during the same period. The Gender Parity Index thus improved from 0.07 in 1947–48 to 0.66 in 1999–2000.

6.2.3 Dropout Ratio

In Orissa, educational dropouts of children at the primary and upper primary level are found to be very high with 42 per cent at the primary level and 57 per cent at the upper primary level. The rates of dropouts are marginally higher in the case of girls in upper primary schools. During the period 1973–2001, the dropout rates declined at the primary level, from 75.3 per cent for boys and 81.1 per cent for girls in 1973 to 42.3 and 41.4 per cent in 2000–01. Similarly, at the upper primary level, it declined from 84.2 and 90.2 for boys and girls in 1973, to 70.9 and 77.1 per cent in 2000-01 respectively.

This shows that the gender-based disparity in education continues to prevail. According to the National Family Health Survey-2 (NFHS-2), the dropout rate among the girls is very high because they are required to shoulder more household work than the boys. The important factors causing dropouts, particularly of girls, are: (i) high incidence of illiteracy and gender bias of the parents, (ii) socio-

cultural barriers for girls to go to schools, particularly in remote rural areas, (iii) lack of basic infrastructure in schools such as toilets and common room, (iv) poverty, and (v) need to take care of infant siblings and involvement of girls in household economic activities (*Sikshya Samasya* 2002). The Survey also reveals that the girls' dropout rate is higher than that of the boys in schools, including the residential ones managed by the ST & SC Development Department of the Government of Orissa.

6.3 Health

Women are not only discriminated on the education front but also in terms of their access to health care facilities, reproductive rights, proper diagnosis of diseases, and nutritious food intake. According to NFHS-2 (1998–99), almost half (48 per cent) of the women population in Orissa suffers from nutritional deficiency, with a body mass index (BMI) less than 18.5. This problem is particularly serious for younger women, illiterate women, and women belonging to the SC and ST communities. Similarly, the prevalence of anaemia is very high among women in the 15–49 year age group and in children below 3 years of age. As a result, they are more vulnerable to diseases and sickness unlike their male counterparts.

Their problems get aggravated due to the gender bias in health care access and practices. For example, in 2000–01, out of a total of 13,786 beds available for indoor treatment of patients in the public health institutions (including medical college hospitals), only 15 per cent of the beds were available for women-specific diseases. In the three medical colleges of Orissa, only 441 beds are exclusively available for obstetrics and gynaecological cases, which is just 15.41 per cent of the total beds available in these hospitals.

The National Family Health Survey 1 & 2 (NFHS 1 & 2) shows that apart from low BMI and nutritional deficiency of women, the incidence of malnutrition is very high among both male and female children in Orissa. NFHS-2 shows that in weight for age

and weight for height indicators, female children are marginally more malnourished than their male counterparts.

Childbearing and poor reproductive health can lead to depletion of maternal health, thereby affecting women's survival. Taking six critical parameters which affect/ reflect reproductive health, a Reproductive Health Index that indicates the status of reproductive health in Orissa has been constructed for the 30 newly created districts of Orissa (see Chapter 8, Table 8.6).

6.3.1 Family Planning

There is a clear gender bias against women in the acceptance of all modes of family planning, and specifically with respect to sterilisation. A total of 1,345,586 sterilisation cases were reported in Orissa during the period 1990–91 and 1999–2000. Of this, 12,98,873 (96.53 per cent) were tubectomy cases and only 46,713 cases (3.47 per cent) were vasectomy cases (Annexure Table 20). Though vasectomy is a comparatively easier family planning acceptance technique, in all the years (except 1998–99), the percentage share of vasectomy cases has registered a marked fall, while the tubectomy cases, covering sterilisation of women, have increased phenomenally.

District-wise family planning achievement figures for the year 1998–99 are shown in Annexure Table 21. The percentage of vasectomy cases is the highest (24.79 per cent) in Rayagada district followed by Koraput (17.59 per cent) and Nabarangpur (13.16 per cent) (Annexure Table 21). All these three districts are part of the undivided Koraput district and are tribal dominated, with a comparatively low literacy rate. The percentage of vasectomy cases is lowest in the coastal districts of Puri (0.05 per cent) and Balasore (0.06 per cent), and the inland districts of Balangir (0.07 per cent). Except Balangir, the other two districts are educationally advanced.

In Orissa, a total of 215,209 IUDs were inserted during the year 1998–99. In addition to this, 108,380 persons used oral pills as a family planning device. Only females use both these methods of family planning. The health statistics of the Directorate of Family Welfare indicates that the number of IUD insertions and oral pills users has increased from 167,697 and 65,750 in 1990–91 to 190,971 and 117,174 in 1999–2000, with a growth rate of 13.88 and 78.21 per cent respectively. Thus, the burden of family planning acceptance mainly falls on the women, even though men can accept some of the methods and relieve women from this burden.

Box 6.2

Top Six and Bottom Six Districts (newly created) of Orissa in terms of Women Married below 18 years of age (per cent) and Reproductive Health Index (RHI)

Women Married below 18 years of age (per cent) Orissa (35.8)		Reproductive Health Index (RHI) Orissa (0.55)	
Top Six	Bottom Six	Top Six	Bottom Six
Jagatsinghpur (9.2)	Nabarangpur (69.5)	Jharsuguda (0.669)	Kandhamal (0.462)
Cuttack (10.6)	Koraput (64.7)	Jagatsinghpur (0.634)	Bhadrak (0.475)
Puri (14.0)	Kalahandi (59.4)	Sundargarh (0.629)	Balangir (0.478)
Jajpur (14.7)	Balangir (57.7)	Keonjhar (0.594)	Nabarangpur (0.485)
Kendrapara (15.8)	Nayagada (53.5)	Cuttack (0.593)	Nuapada (0.495)
Jharsuguda (17.8)	Ganjam (50.7)	Sambalpur (0.592)	Balasore (0.497)

Source: See Chapter 8, Table 8.6.



Table 6.4

Life Expectancy at Selected Ages by Sex and Residence, 1970–75 to 1992–96

At age (1)	Period (2)	Total			Rural			Urban		
		Total (3)	Male (4)	Female (5)	Total (6)	Male (7)	Female (8)	Total (9)	Male (10)	Female (11)
0	1970–75	45.7	46.0	45.3	45.1	45.6	44.6	55.4	54.6	56.3
	1976–80	49.4	50.0	48.4	48.5	49.4	47.7	58.2	57.7	58.9
	1981–85	53.0	53.1	53.0	52.4	52.4	52.4	59.6	58.8	60.5
	1986–90	54.4	54.6	54.0	53.8	54.4	53.1	61.7	60.8	62.7
	1991–95	56.5	56.6	56.2	55.7	56.0	55.3	64.4	61.9	66.5
	1992–96	56.9	56.9	56.6	56.1	56.4	55.8	64.7	62.1	66.0
1	1970–75	52.0	52.4	51.7	51.6	52.1	51.2	59.6	62.7	60.5
	1976–80	56.0	56.7	55.6	55.6	56.3	55.1	62.2	61.8	62.6
	1981–85	60.0	60.2	59.6	59.6	60.0	59.3	63.4	62.5	64.3
	1986–90	61.0	61.8	60.2	60.7	61.5	59.7	65.5	65.2	65.9
	1991–95	62.2	62.6	61.8	61.6	62.1	61.0	68.0	65.6	70.1
	1992–96	62.6	62.6	62.2	61.9	62.3	61.5	68.4	65.7	69.6
5	1970–75	53.4	53.6	53.2	53.1	53.4	52.8	59.0	58.2	60.0
	1976–80	56.1	56.7	55.8	55.8	56.5	55.4	60.7	60.0	61.6
	1981–85	59.2	59.1	59.4	59.0	58.8	59.1	62.0	60.8	63.3
	1986–90	60.3	60.7	59.9	60.1	60.5	59.6	63.2	62.6	63.7
	1991–95	61.2	61.0	61.7	60.8	60.7	60.8	65.6	63.1	68.0
	1992–96	61.1	60.9	60.9	60.5	60.7	60.3	66.1	63.1	67.6
50	1970–75	17.8	17.9	17.8	17.7	17.8	17.6	20.5	19.6	21.4
	1976–80	19.5	19.2	19.8	19.4	19.1	19.7	21.7	20.8	22.8
	1981–85	21.3	20.8	21.7	21.2	20.7	21.6	22.6	21.6	23.7
	1986–90	22.2	22.3	22.1	22.1	22.4	22.0	23.1	21.9	24.3
	1991–95	22.9	22.7	23.3	22.7	22.7	22.7	25.5	22.8	27.2
	1992–96	22.7	22.1	22.6	22.2	22.1	22.3	26.1	23.1	27.3
60	1970–75	11.4	11.6	11.3	11.3	11.5	11.1	14.1	13.6	14.5
	1976–80	13.5	13.5	13.4	13.3	13.4	13.2	15.4	14.9	15.7
	1981–85	14.3	14.1	14.5	14.2	14.1	14.3	15.5	14.4	16.6
	1986–90	15.3	15.6	14.9	15.3	15.8	14.8	15.8	14.6	17.0
	1991–95	15.8	16.2	15.4	15.6	16.2	14.7	18.4	15.2	19.9
	1992–96	15.8	15.3	15.4	15.2	15.4	15.1	18.8	15.6	19.8
70+	1970–75	6.9	6.7	7.0	6.7	6.5	6.9	9.0	9.3	8.8
	1976–80	9.0	9.2	8.8	8.9	9.1	8.8	10.6	10.6	10.4
	1981–85	9.5	9.6	9.4	9.4	9.6	9.3	10.5	10.0	10.9
	1986–90	10.1	10.7	9.4	10.1	10.9	9.3	10.3	9.2	11.4
	1991–95	10.6	11.3	9.8	10.4	11.4	9.0	12.9	9.0	14.6
	1992–96	10.6	10.5	9.8	10.0	10.7	9.4	13.2	9.5	14.3

Source: Government of Orissa, *Health Statistics of Orissa*, Directorate of Health Services, Bhubaneswar, various years.

6.3.2 Life Expectancy

It has been widely observed that on an average, women live longer than men, with work-related stress, unemployment, smoking, and alcohol consumption taking a toll on men's life expectancy. However, in Orissa, as per the data for 1996, the life expectancy at birth of male persons (56.9 years) is only marginally higher than that of the females (56.6 years). This difference is also very small at different ages.

Table 6.4 shows that the life expectancy of urban females is higher than that of the rural females. In rural areas, the life expectancy of male persons is higher than that of the females. This pattern is seen in almost all age groups. However, the order of increase in life expectancy for both males and females during the period 1970–75 to 1992–96 is almost the same for both rural and urban areas and for all ages (Table 6.4).

6.3.3 Infant Mortality Rate

The infant mortality rate in the state is very high, both for males and females. In 1992, 1994, and 1997, the infant mortality rate of females is more than that of the males (Table 6.5). However, in urban areas, the infant mortality rate of females was higher than that of the males in as many as 9 years during the period 1982–98. In rural areas, the female infant mortality rate was higher than that for the males only in 1987, 1990, and 1992. This shows that the difference in the male and female infant mortality is more in urban areas than in rural areas.

The male mortality rate of infants has progressively been reduced at the state level from 140 in 1982 to 98.5 in 1998 (a fall of 29.64 per cent). However, the female infant mortality rate came down from 124 in 1982 to 96.9 in 1998, i.e. a fall of only 21.85 per cent. This more or less implies that while greater efforts have been put in for the protection of male

Table 6.5
Infant Mortality Rate by Sex and Residence, 1982–98

Sl. No.	Year	Total			Rural			Urban		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	1982	132	140	124	139	148	130	64	62	67
2.	1983	126	127	126	131	132	130	73	71	75
3.	1984	131	132	130	135	137	133	84	78	91
4.	1985	132	137	126	137	141	132	84	97	72
5.	1986	123	134	110	127	137	116	75	106	41
6.	1987	126	137	113	131	129	133	75	66	84
7.	1988	122	126	117	126	132	120	69	64	74
8.	1989	121	123	119	125	127	123	78	84	70
9.	1990	122	121	123	127	124	130	68	85	48
10.	1991	124	126	123	129	131	127	71	72	69
11.	1992	115	114	116	118	117	118	80	76	84
12.	1993	110	118	101	115	122	107	69	82	55
13.	1994	103	103	104	108	107	109	65	71	59
14.	1995	103	105	101	107	109	105	65	70	59
15.	1996	96	100	92	99	104	93	65	52	79
16.	1997	96	95	98	100	98	101	65	59	70
17.	1998	97.6	98.5	96.9	101.0	102.6	99.3	65.5	57.5	74.3

Source: Government of Orissa, *Health Statistics of Orissa*, Directorate of Health Services, Bhubaneswar, various years.

infants, prevention of female infant deaths in the state fails to get equal attention.

6.4 Non-market Economic Activities

Women in Orissa are discriminated on the social as well as economic front. They are usually assigned to perform only peripheral economic works. The Time Use Survey¹ in Orissa gives some indication about gender discrimination in economic activities, in both paid as well as unpaid jobs. The survey gives an account of the time spent by men and women in SNA, Extended SNA, and Non-SNA activities.²

6.4.1 SNA Activities

Men spend more time (about 40.12 hours per week) than women (17.07 hours) in the System of National Accounts (SNA) activities in the state. This might be due to the fact that under the present social set-up, women are required to devote more time to household work, which comes under Extended SNA activities. Rural women put in more hours on SNA work (19.03 hours per week) than urban women (8.37 hours per week) (Annexure Table 22). The number of female children engaged in the SNA activities is higher than the number of male children. However, the time spent by female children (19.11 hours per week) is less than the time spent by male children (28.63 hours a week). Under the SNA activities, females spend the highest time (26.94 hours per week) in Koraput district and the lowest (11.85 hours per week) in Sundargarh district.

Males spend 23.05 hours per week more than females on productive economic activities. This difference is more in the districts of Puri (32.38 hours), Sundargarh (28.41 hours), and Cuttack (25.04 hours) and less in the districts of Keonjhar (15.41 hours), Koraput

(16.20 hours), and Kalahandi (21.07 hours). This implies that women in the developed districts spend less time on the SNA activities than women in the less developed districts.

6.4.2 Extended SNA Activities

In the Extended SNA activities, weekly average time devoted by females inside a house (34.77 hours) was six times more than the time spent by them outside the house (5 hours) and four times more than the time spent by their male counterparts inside the house (8.38 hours).

Women in large numbers work in the SNA activities but the number of hours they put in is much less due to the larger burden of work at home. Women can participate for longer hours in the SNA activities if their extended SNA work is reduced/ shared through better co-operation and understanding with men. The burden of the extended SNA activities on women can be reduced by: (i) ensuring adequate supply of fuel, food, water at the village point, (ii) setting up of baby-care and childcare centres, and (iii) formulating policies to eliminate the social stigma and traits pertaining to the patriarchal family structure in the state.

In all the 10 districts surveyed, the females spent more time on the extended SNA activities than males (Annexure Table 23). The difference in the time spent per week by the males and females was highest in Sundargarh district (36.12 hours) followed by Balangir (35.13 hours) and Cuttack (34.31 hours). The difference was lowest in Ganjam district (25.54 hours) followed by Dhenkanal (27.85 hours) and Koraput (28.77 hours). Though females spent more hours on the Extended SNA activities as compared

¹ The Time Use Survey (1998–99) in Orissa covers ten undivided districts out of 13, the districts being Sundargarh, Keonjhar, Balasore, Cuttack, Dhenkanal, Balangir, Kalahandi, Koraput, Ganjam, and Puri. The main objective of the surveys (the first of its kind for the period July 1998 to June 1999) was to collect data for identifying and quantifying the non-market economic activities of men, women and children above six years of age for improving National Income Statistics and to study the gender discrimination in the household activities. The survey was simultaneously conducted in six states in the country, viz, Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu.

² The SNA (System of National Accounts) activities consist of primary production activities like crop farming, animal husbandry, fishing, forestry, processing and storage, mining and quarrying; and the secondary activities like construction, manufacturing, trade, business and services. Similarly, extended SNA activities include household maintenance, care for children, sick, and elderly. The activities related to learning, social and cultural, mass media, personal care and self-maintenance come under the category of Non-SNA activities (Government of Orissa 2001).

to males (in both the rural and urban areas), the difference between them was more in the urban areas.

6.4.3 Non-SNA Activities

Since women are responsible for a greater share of Non-SNA work in the care economy, i.e., home-based work which is difficult to measure, they carry a disproportionately greater burden of work in unpaid activities when compared to men. Women in the present patriarchal social set-up perform activities like cooking and cleaning household utensils, and taking care of the children, the sick and the aged. On an average, women bear the brunt of household activities to the extent of 90 per cent, leaving only 10 per cent burden to their male counterparts (such as shopping, teaching children, care of guest, accompanying children to places, and supervising children). The role of women is significant in household management.

Annexure Table 24 shows the district-wise weekly average time spent on the Non-SNA activities in 10 districts. In all the surveyed districts, except Puri, males spent more time on Non-SNA activities than females. In Puri, on an average, males put in 0.86 hours more in Non-SNA activities than females. The difference in time spent on Non-SNA activities by males and females was more in the districts of Keonjhar (13.84 hours), Koraput (12.56 hours), and Balangir (12.22 hours), and less in the districts of Ganjam (6.43 hours), Dhenkanal (7.17 hours), and Sundargarh (7.6 hours). As regards place of residence, males of both urban and rural areas spent more time on the Non-SNA activities compared to females. However, this difference was more in rural areas.

6.4.4 Decision Making

Women have a significant role to play in household management. Around 92.62 per cent of the females participated in the decision making of the family (Table 6.6). Most ST women in the districts of Kalahandi, Ganjam, and Puri participated in the

family decision making process. Community-wise, female participation rate in the family decision-making was highest among the SCs (93.61 per cent), followed by other communities (92.79 per cent) and STs (91.33 per cent).

The rate of female participation in decision making was the highest in Kalahandi district (97.91 per cent), followed by Balangir (94.52 per cent), Ganjam (94.26 per cent), and Cuttack (94.18 per cent). Likewise, this rate was lowest in Balasore district (89.55 per cent), followed by Koraput (89.73 per cent), Keonjhar (91.34 per cent), and Sundargarh (91.72 per cent).

This implies that there is no direct linkage between the female participation rate in household decision-making and the development indicators such as female literacy rate. Possibly the culture of different regions and different communities plays a greater role in this respect.

Table 6.6
District-wise Percentage Distribution of Females Participated in Decision Making by Different Social Groups in Orissa

Sl. No.	Districts	Social group			
		SC	ST	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sundargarh	83.88	96.30	91.17	91.72
2.	Keonjhar	95.15	89.41	91.84	91.34
3.	Balasore	91.40	84.92	89.22	89.55
4.	Cuttack	95.19	93.97	93.98	94.18
5.	Dhenkanal	97.87	87.38	94.46	93.70
6.	Balangir	91.59	96.43	94.83	94.52
7.	Kalahandi	93.98	100.00	97.98	97.91
8.	Koraput	94.06	88.03	90.31	89.73
9.	Ganjam	91.48	100.00	93.94	94.26
10.	Puri	99.18	100.00	93.17	93.62
	Total	93.61	91.33	92.79	92.62

Source: Government of Orissa (2001), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Co-ordination Department, Bhubaneswar.



6.4.5 Miscellaneous Activities

The average time spent on miscellaneous activities, district-wise, has been shown in Annexure Table 25. In activities like cooking, cleaning the house, cleaning utensils, washing/mending of clothes, pet care, childcare, accompanying children to places, care of the sick and elderly, and females spend more time than males (Annexure Table 25). In cooking activities, the difference of time devoted by a male and female per week is very high, at more than 18 hours. However, males spend marginally more time in activities like shopping and teaching and supervising children. A female spends 61.91 hours per week in sleeping as against 63.65 hours by a male. Even in the activities like talking and gossiping, listening to music, personal hygiene, and physical exercise, males spend more hours than the females. Only in two activities, i.e. watching television and meditation, females spend a little more time than males (Government of Orissa 2001b).

6.4.6 Working Women and Unpaid Work

A working woman in Bhubaneswar, the capital of Orissa, spends on an average 6.62 hours per day on domestic work (Patnaik 1995). Working women with small children spend more time (10.25 hours) on domestic work, including rearing and feeding of small children. Time spent on major domestic chores is more (4.17 hours) in the case of SC, followed by OBC (4.09 hours), and the least (3.84 hours) in the case of general caste. Occupationally, time spent on major domestic chores is highest in the case of school teachers (4.50 hours), followed by clerks (3.99 hours), nurses (3.8 hours), and college teachers (3.35 hours). Executives and doctors spend relatively less time on domestic chores, at 2.73 hours and 2.76 hours respectively. Help received from the husbands or by domestic servants is marginal and insignificant. The study mentions that husbands of 13.46 per cent of the respondents help in shopping, 9.13 per cent in teaching, 3.85 per cent in cooking, and only 1.44 per cent help in washing of clothes and dishes.

This indicates that working women are overburdened and get very little help from their male counterparts for sharing the domestic work. This also implies that their working status does not result in neglect of home and children, and that in spite of their sizeable economic contribution, most women have a lower status in the household.

6.4.7 Forest-Related Activities

The increasing degradation of forests has given rise to the need for afforestation, plantation, and regeneration of the environment in the state. This is essential in order to reduce the drudgery and time spent by forest dwellers, particularly women, on non-timber forest produce (NTFP) related activities for earning a livelihood. One study (Samal 2002a) found that around 23.71 per cent of the total man-days of work of a household was spent in collecting forest produce in 1995, and this increased to 24.92 per cent by 2000. The overall percentage share in the year 1995 of total man-days of employment in collection of forest produce was comparatively higher (13.23 per cent) in the case of females than their male counterpart (i.e., 10.48 per cent). Interestingly, this share for females increased to 15.87 per cent in 2000, while for the males it marginally declined to 9.05 per cent during the same period.

6.4.8 Households Headed by Women

The economic condition of a household is partly a function of the number of adult earning members. If the male head of the household dies, there is a sudden decline in the earning strength of the household. Due to the social stigma against the remarriage of women, it is likely that a household headed by a widow would have a smaller family size than one with a male head. Thus, while around one-fifth of the elderly in Orissa live alone, the poor and elderly women are much more likely to live alone as compared to their male counterparts (Panda 1998). In addition, given the patrilineal nature of society, women are excluded from inheritance of property, most notably land. Therefore, households headed by

Displacement, Women's Movement, and Poverty

Women are the most marginalised section amongst the project-induced displaced persons. This is due to various factors such as (i) hostility from the host communities for sharing of drinking water, common property resources and infrastructure facilities, (ii) provision of land only to an adult male (as the head of the family) in the case of land for land compensation package, (iii) payment of cash compensation to the male head of the family, (iv) difficulties in negotiating a marital alliance for marriageable girls from the displaced households, (v) shrinkage of earning and employment opportunities (for women) on the relocation sites, (vi) breakdown of social and cultural linkages, and (vii) problems in collection of fuel, fodder, and water.

Women have participated in several protest

movements against displacement. In various peoples' movements (*Jana Andolana*) in the state wherein a large number of women participated, the people of the locality have succeeded in achieving their objectives. For instance, the Gandhamardhan Protection Movement against mining by BALCO in Gandhamardhan hill, Baliapal Movement against Missile Test Range, Chilika Bachao Andolan against Shrimp culture by Tata Aquatic Farm, Gopalpur Movement against the Tata Gopalpur Project, and Movement at Kashipur against Utkal Alumina were successful because women were in the forefront. Sumani Jhoria of Kashipur and Tulasi Munda of Kandhamal are glorious examples of women's protest against state agencies. Women are also taking an active part in anti-liquor movement.

Source: (i) Balaji Pandey (1998), *Depriving the Underprivileged for Development*, Institute for socio-Economic Development, Bhubaneswar; Bholeswar Sahu (2000), *Development and Displacement: A Case Study of Rengali Dam Projects in Orissa*, Unpublished Ph.D. Thesis, Utkal University, Bhubaneswar prepared at Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar; (ii) Kishor C. Samal (1998), 'The Socio-Economic Impact of the NALCO Angul Sector', *Social Action*, Vol. 48, January–March, pp. 83–93; (iii) Kishor C. Samal (2002), 'Shrimp Culture in Chilika Lake: case of Occupational Displacement of Fishermen', *Economic and Political Weekly*, Vol. 37, No. 18, 4–10 May, pp. 1714–18.

women are more likely to fall into chronic poverty than those headed by males. The status of women needs to be enhanced by providing them access and control over resources if the strong poverty nexus between living arrangements, widowhood, and gender has to be rectified.

6.4.9 Natural Disasters and Women

The interplay of various physical, socio-economic and political factors determines a population's vulnerability to natural disasters and their ability to respond to them. Women are the worst sufferers during natural disasters like cyclone, flood, and drought. Women are vulnerable on account of: (i) poor representation in the household and community level decision making processes, (ii) poor access to information, skills, resources, and finance (iii) rise in vulnerability for sexual exploitation due to collapse of physical space (shelters) and subsequent social dislocation, (iv) grave risks to pregnant women who face the problem of acute congestion in shelter

places, particularly during cyclone and flood (Behera, Mishra and Mishra 2002).

Women faced discrimination in relief and rehabilitation after a natural disaster like the 1999 Super Cyclone (Samal 2003). There was no programme except for Mamata Gruha that specifically targeted women, and the women were discriminated against in many cases (Samal, Meher and Panigrahi 2003). The 1999 super cyclone inflicted terrible psychological trauma on the affected women with a long lasting effect. A few women became mentally imbalanced. The large-scale destruction of dwelling houses and rural infrastructure caused severe inconveniences to women in their day-to-day activities like bathing, washing, and defecation (Swain 2002).

6.5 Gender Discrimination in the Marketplace

Female labour in Orissa, as elsewhere, does not have the same access as men to the labour market.



Women are predominantly employed in labour-intensive and unskilled jobs with less security of tenure and lower wages, while male labour has access to capital-intensive jobs with greater stability, higher wages, and better career prospects. In the developing countries, women's participation in the labour markets is low. Their presence is more pronounced in the unorganised, informal, unskilled, and low-paid inferior jobs. The labour market is segmented along many criteria including gender, which causes discrimination against women.

Despite the recent increase in women's educational attainment, women continue to earn less than men in the labour market—even when they have the same education, technical skill and years of work experience. In the industrial countries, women in the wage sector earn 77 per cent of what the men earn on an average, while, in the developing countries they earn 73 per cent of the total men's earnings. And only about a fifth of the wage gap can be explained by gender differences in education, work experience or job characteristics (World Bank 2001a).

The majority of women workers in rural areas are engaged in agriculture, while the urban women workers are primarily employed in the unorganised sectors such as household industries, petty trades and services, building and construction work. (Government of India 2002a). Wage inequalities among men and women exist, and some inequalities seem to have increased in the last few years. Jobs done mainly by women are also graded lower on the wage/ pay scale, such as in the construction and agriculture sectors.

According to the 1991 census, only 27.28 per cent of the total workers in Orissa are women. The main workers and marginal female workers constitute 58.2 per cent and 41.8 per cent of the total female workers respectively. The unorganised primary sector employs as much as 82.7 per cent of the total female workers. Around 5.2 per cent of the female main workers are engaged in household industries while

other sectors of the economy provide employment to 12.1 per cent of female main workers. Women play an important role in agriculture, animal husbandry, and other related activities. Women agriculture workers generally participate in all operations except ploughing. A larger number of female workers are also engaged in marginal occupations such as collection of fish, fuel-wood, cow dung, tailoring, and weaving (Government of Orissa 2001).

Various NSS rounds have shown continuing differences in the male and female wages. As per the NSS (55th round) findings, the average daily wage in Orissa of rural females engaged in public work is Rs 28.76 as compared to Rs 33.87 for males. In private work, the average daily wage in the rural areas for males and females is Rs 31.14 and Rs 23.34, respectively while it is Rs 39.02 for males and Rs 27.07 for females in the urban areas.

Differences in wages between men and women for the same work exist although there is a supportive legal framework against it. The Equal Remuneration Act, 1976 provides for payment of equal remuneration to men and women for work of similar nature. However, to skirt legal provisions in some sectors such as construction, women are employed in low-paid jobs while men are placed in high paid jobs. Indeed, one source of productivity difference between men and women stems from the lesser amount of time and energy that many women can commit to labour market careers as a result of division of labour within the family (O'Neill 2003).

6.6 Positive/Protective Discrimination

A number of progressive legislative measures have been enacted by the Government of India since independence in order to reduce various forms of social and economic inequalities on the grounds of caste, gender, ethnicity, religion and region, in a traditional hierarchical society. Over the years, traditional gender-based disparities and discriminations between men and women have been reduced to a considerable extent at both the all-

India level as well as in Orissa. Nevertheless, more proactive women empowerment measures at the state level are required to bridge the gender gap.

With the objective of greater empowerment of women, the state government has been encouraging their employment in certain departments like education and health (Annexure Table 26). Females comprised only 3.5 per cent of the total regular employees in 1967. This figure marginally increased to 4.6 per cent in 1981. However, from 1981 it has steadily increased and women constituted one-tenth of the total regular employees in 1991 (Annexure Table 27). This trend is seen in all categories of employees. This may be due to various steps taken by the state government for empowerment of women in the state that were intensified during the late Biju Patnaik's government. A law was enacted in 1994 to keep one-third of all vacancies reserved for women in all government departments.³

6.6.1 Reservation for Women in Government Jobs

To increase the number of women in public services, 30 per cent of the vacancies in the state government departments arising in a year in Group-B, Group-C, and Group-D services/posts have been reserved for women candidates. The Orissa Civil Services (Reservations of Vacancies for Women in Public Services) Rules 1993 have been framed and are now in force. All posts of Anganwadi workers, supervisors, and Child Development Project Officers (CDPOs) will be filled up by women only. These steps will create new job opportunities for women in the state.

According to the data supplied by the Directorate of Economics and Statistics, Bhubaneswar, there were 379,628 regular employees in the State Government as on 31 March 1991, of which, females constituted only 10.47 per cent. The percentage share of females was lower in the Gazetted class (6.90 per cent) as compared to the Non-Gazetted class (10.78 per cent).

It is found that the percentage of women employees is relatively higher in the Health Department (25.92 per cent), followed by Education (15.51 per cent), Panchayati Raj (14.80 per cent), and Harijan and Tribal Welfare departments (11.74 per cent). The percentage of women in other departments is comparatively small at 2.69 per cent (Annexure Table 26). The share of women government employees has increased to 15.30 per cent in 2002. There is still scope for increasing the percentage of women among state government employees.

6.6.2 Employment of Women in the Organised Sector

The percentage of women employees in the organised sector is shown in Annexure Table 28. The organised sector includes central government, state government, quasi government, local bodies, and organised private sector organisations. With the exception of 1996, the share of women in the organised sector employment has shown an increasing trend each year, increasing from 8.78 per cent to 12.41 per cent between the period 1990 and 2000. However, the percentage share of women in state government departments is higher as compared to their share in the central government departments, quasi government organisations, local bodies, and organised establishments in the private sector. This is primarily due to job reservation for women on the one hand and downsizing of government machinery on the other.

6.6.3 Women in Elected Bodies

The representation of women in elected bodies is not satisfactory. Out of the 21 Lok Sabha MPs elected from Orissa in 2004, only two are women (9.5 per cent) and out of the ten Rajya Sabha MPs elected from the state, only two are women (20 per cent). There were only two women MLAs out of a total of 60, in the first Assembly of Orissa in 1937 and this increased to three out of 91 in 1946. In 1980, the number of women MLAs was five (3.40 per cent), while in 1985, 1990, 1995, and 2004, their

³. Vide Gazette Notification No. 15791 - 2R/1-23/94- Gen, dated 23 July 1994.

numbers were eight (5.44 per cent), seven (4.76 per cent), eight (5.44 per cent), and 11 (7.48 per cent), respectively out of a total of 147 (Table 6.7). Basanta Manjari Devi, the first woman minister, became a Deputy Minister in 1952 and a Cabinet Minister in 1957. Nandini Satpathy was the first woman Chief Minister of Orissa in 1972 (Das 1994a). The representation of women in the Orissa Legislative Assembly is generally low (less than 10 per cent of the total number of seats) .

Promoting women’s rights and increasing their participation in public life may contribute to cleaner business and better governance. It has been found that where women’s influence in public life is greater, corruption is lower. Women in business are less likely to pay bribes to government officials, perhaps because women have higher standards of ethical behaviour or they have greater aversion to risk. For similar reasons, women in government are less likely to accept bribes. All these make a strong case for having a greater representation of women in the labour force and in politics. Institutional changes that establish gender equality in basic rights are important factors for gender equality in political participation and voice. Recent experiences in more than 30 countries suggest that political reservation can be effective in accelerating progress towards greater female political participation and representation (World Bank 2001a). Reservation can take different forms, such as reserving a percentage of electoral seats in Parliament, in Assembly, or in Gram Panchayats, for women. Political parties can reserve a percentage of the total seats contested by them for women candidates.

6.6.4 Panchayati Raj Institutions

In the Eighth Five-Year Plan, a shift was made from mere economic development to empowerment of women and a number of measures were undertaken for their social and economic emancipation. The empowerment measures included the 73rd and 74th Constitutional Amendments which recommended at least 30 per cent representation of women in

all elected local self government bodies such as Panchayati Raj Institutions (PRI), Municipalities, and Notified Area Councils (NACs). Orissa was the first state to implement this and held elections in 1997. The Central Government also set up the National Commission for Women at the Centre and launched the Mahila Samruddhi Yojana (MSY) for sensitising women at the grassroots level in rural areas. The Government of Orissa has also set up the State Commission for Women and the Orissa Mahila Vikas Samabaya Nigam (MVSN). The MVSN was set up as a nodal agency for the empowerment of women by undertaking economic programmes, social sensitisation programmes, and allied infrastructure activities. It has 196 affiliated societies, out of which 54 are co-operative societies. The MVSN undertakes the task of sensitising and educating the women

Table 6.7
Women MLAs in Orissa

Sl. No.	Year	Total strength of MLAs	Women MLAs	% of Women MLAs
(1)	(2)	(3)	(4)	(5)
1.	1937	60	2	3.3
2.	1946	91	3	3.3
3.	1951–52	140	3	2.1
4.	1957	140	5	3.8
5.	1961	140	5	3.8
6.	1967	140	5	3.8
7.	1971	140	1	0.7
8.	1974	140	4	2.9
9.	1977	147	7	4.8
10.	1980	147	5	3.4
11.	1985	147	8	5.4
12.	1990	147	7	4.8
13.	1995	147	8	5.4
14.	2000	147	14	9.52
15.	2004	147	11	7.48

Source: (i) Government of Orissa (2004), *Women Legislatures in Orissa, Legislative Assembly, 1937–90*, Orissa Legislative Assembly, Bhubaneswar

(ii) Government of Orissa, *Statistical Information on General Election to the Orissa Legislative Assembly 1990*, Orissa Legislative Assembly, 1995, 2000, and 2004 (mimeo) and various other issues.

elected to Panchayati Raj Institutions through a gender sensitive module. Women Chairpersons and Vice-Chairpersons from 14 districts as well as 303 women elected to Gram Panchayats (GPs) were trained by March 1999.

More than one-third (35.78 per cent) of the total seats are reserved for women candidates. A higher percentage of seats is reserved for women belonging to SC (46.72 per cent), ST (39.51 per cent) and OBC (37.96 per cent) (Annexure Table 30). In the unreserved category, 24.64 per cent of seats are reserved for women candidates. As per the Orissa Panchayat Act 1994, one of the two top office bearers, i.e. the Chairperson or the Vice-Chairperson of all the three tiers (Gram Panchayat, Panchayat Samiti, and Zilla Parishad) must be a woman. This shows that the state government has been striving hard to empower women by reserving seats for them in Panchayati Raj Institutions. To help the upliftment of women belonging to backward communities, the percentage of seats reserved for women is more in the case of marginalised social groups like SC, ST, and OBC, as compared to the General or Unreserved category.

The reservation of seats for women in the PRIs seems to have started generating positive effects. In the recent elections held for Local Self- Government, women candidates in Orissa constituted 34.74 per cent of the total candidates. The election was for various offices of the different Panchayati Raj bodies such as Ward members, Sarpanch, Panchayat Samiti member, and Zilla Parishad member. District-wise, the percentage of women candidates was highest in Jagatsinghpur district (45.41 per cent) followed by Puri district (44.58 per cent). In contrast, the percentage was lowest in Boudh (25.72 per cent) and Nabarangpur (26.45 per cent). This shows that a greater percentage of women contest in the PRI elections from the districts where the literacy rate, particularly the female literacy rate, is higher and vice-versa.

Due to reservation of seats for women in PRIs since 1992, there has been some improvement in the social

status and empowerment of women in Orissa (ISS 2001). Major areas of improvement are as follows:

- (i) Participation of women in Gram Sabha and Pali Sabha has increased.
- (ii) Women PRI members are less corrupt as compared to their male counterparts.
- (iii) For the first one or two years, the female PRI members act as per the direction of their male relatives (in most cases, the husband), but after that they generally act independently.
- (iv) Female PRI members are more sincere than their male counterparts.
- (v) Party-based political involvement is less in the case of women PRI members.
- (vi) In contrast to male PRI members, women PRI members take more interest in the economic empowerment of women through formation of Self-Help Groups (SHGs).

However, despite reservation of seats for women in the PRIs, many women do not come forward to contest elections owing to illiteracy and their inability to communicate with officials regarding grievances of their constituencies. Victimization of elected women members, while claiming their rights, is another important factor that creates hurdles in the process of political empowerment of women (Rajiv Gandhi Foundation 2000). For instance, one woman Sarpanch was murdered by the liquor mafia in Sundargarh district as she was spearheading the anti-liquor movement in her area.

6.6.5 Educational Institutions

The Government of Orissa has taken a positive step by reserving 30 per cent of the seats for women in Engineering Colleges within the state. A similar reservation is desirable in other educational institutions, particularly in Medical and Management colleges.

However, female participation in College Union elections is very poor in Orissa. The data relating to College Union elections during 2002 and 2003, collected from three important colleges, viz., Ravenshaw College (Cuttack), BJB College



(Bhubaneswar), and Bhadrak College, shows that no woman candidate was found contesting for any of the posts. During the same period, the percentage of women students in these three co-educational colleges was 44.55, 53.52, and 36.21, respectively. Reservation of a certain percentage of posts or offices for women (as in PRI institutions) can help to increase female participation in democratic institutions.

6.6.6 Women-Related Development Programmes

The central and state governments in India have followed a proactive policy to reduce the gender based gap in social and economic development. The state government has been trying to blend together welfare orientation policy measures and empowerment measures to generate rapid socio-economic transformation among women. There has been a significant increase in the literacy rate of women, from 4.5 per cent in 1951 to around 51 per cent in 2001. Due to the increase in female literacy, employment and work participation of females in both organised and unorganised sectors have increased considerably over the years. This factor, along with the positive discrimination measures, such as reservation in government sector jobs and representation in PRI bodies through quota system for various posts, has helped in the reduction of gender disparities to a marked extent.

In different Five-Year Plans, various welfare oriented programmes and poverty alleviation programmes have been implemented through Mahila Mandals and Mahila Samitis. The state government, with assistance from the central government, has introduced many women focused programmes in recent years. The National and State Commission for women (for preventing dowries and atrocities against women), implementation of Development of Women and Children in Rural Areas (DWCRA) programme, Training of Rural Youth for Self Employment (TRYSEM), and Integrated Child Development Services (ICDS) for income generation and primary health care measures, have helped in women's empowerment.

DWCRA, which was introduced as a sub-scheme of the Integrated Rural Development Programme (IRDP), was intended to provide opportunities for gainful self-employment to women from poor rural families. However, some studies (Samal 1998b; Samal and Jena 1998) show that in 42 per cent of the cases, beneficiaries did not continue the project activities under the DWCRA scheme. With effect from 1 April 1999, this scheme has been merged into a new scheme called *Swarnjayanti Gram Swarozgar Yojana* (SGSY).

Prior to the SGSY, schemes such as the IRDP, Supply of Improved Tool kits to Rural Artisans (SITRA), Ganga Kalyan Yojana (GKY), the Million Wells Scheme (MWS), DWCRA, and TRYSEM were in operation in rural areas. It was felt that this fragmented approach with a multiplicity of schemes was not able to focus on the needs of the rural poor in a coherent manner. The above schemes were amalgamated by the Government of India and merged into a single new scheme, called SGSY. It aims at establishing a number of micro-enterprises in rural areas, building upon the potential of the rural poor. Beneficiaries, known as *Swarozgaries*, may be individual families or SHGs. During the year 2000–01, 87 per cent of the targeted 99,094 families have been assisted in the state. The percentages of SC, ST, and women *Swarozgaries* work out to be 22, 23, and 25 per cent respectively. The average investment per family was Rs 22,004, with a subsidy to credit ratio of 35:65. It is desirable to extend SGSY to middle class families, so that they can become a catalyst for the development of rural areas (Government of India 2002c).

While the ICDS is likely to have left out a section of the target population, its merit lies in the importance given to the 'individual' instead of the 'household'. In contrast to a unitary model, which assumes the households to act as one, the collective model of households deals directly with the way in which individual members of households reconcile different preferences. The unequal autonomy and bargaining power of different members of the households may result in under-investment in human capital for

women and even under-consumption on their part. Women are disproportionately vulnerable—the poor children and particularly girl children are especially vulnerable. Therefore, there is a need for more effective gender targeting in policy. The ICDS and the Supplementary Nutritional Programme (SNP) are conventionally targeted towards households. However, they should be modified to give more emphasis to women, particularly girl children, for increased access to education, health, food, clothing and leisure since they are discriminated against in a traditional patriarchal society (Samal 1998a; 1998b).

During the Ninth Five Year Plan (1997–2002), the state government's strategy for improving the status of women was as follows (Government of Orissa 2002a):

- (i) Adoption of political and administrative measures to minimise gender bias in recruitment and to improve working conditions;
- (ii) High priority for female literacy and quality education for girls;
- (iii) Special emphasis on reproductive and child health (RCH) programmes and primary health care measures;
- (iv) Skill upgradation, vocational training, and capacity building approach for higher level earning;
- (v) Promotion of women SHGs for income generating activities; and
- (vi) Renewed efforts to project a positive image of the girl child and women.

In addition to these goals, the newly formulated Tenth Five Year Plan aims at improving nutritional and health status of women and children to reduce infant and child mortality. The Plan also aims to ensure proper earmarking of funds/benefits in all women related sectors and to identify the female component of plans and programmes across all sectors of development.

On the occasion of International Women's Day on 8 March 2001, the state government launched a special programme called "Mission Shakti" for the

economic empowerment of poor women. This self-help programme aims at forming and promoting one lakh SHGs of women over a period of four years, i.e. 2001–05, besides strengthening the existing ones. Under this mission, a total of 96,661 Women Self-Help Groups (WSHGs) have been formed with 12.42 lakh members by September 2003. A savings of Rs. 71 crores has been mobilised by the WSHGs. A total credit of Rs 110 crore has been given to 58,000 WSHGs for undertaking different income-generating activities. The WSHGs have a good geographical coverage. Of the 10 newly formed districts, which have more than 300 WSHGs per lakh population, seven are in the southern region. Balangir, Koraput, and Malkangiri districts have less than 230 WSHGs per lakh population.

In addition, the state government, with assistance from the central government, has launched another special programme for women's empowerment: *Swayamsiddha*, which covers 36 blocks of the KBK (Kalahandi, Balangir, and Koraput) districts and Boudh district. This scheme aims at capacity building of women SHGs for taking up different income generating activities. Other programmes specific to empowerment of women are Vocational Training Programme, Short Stay Homes, Swadhar Programme to provide immediate shelters to women in difficult circumstances, Working Women's Hostels, MVSN, Balika Samriddhi Yojana, *Swashakti* project, Women's Economic Programme (WEP), Rashtriya Mahila Kosh (RMK), Women polytechnics and Industrial Training Institutes (ITIs).

6.7 Public Expenditure on Women

For the first time, a Women's Component Plan (WCP) was introduced in the Ninth Five Year Plan (1997–2002). This states that not less than 30 per cent of the funds and benefits should be specifically earmarked for women's programmes in all women-related sectors.

A study by the Department of Women & Child Development, Government of India, has identified three categories of public expenditure made on

women. These are: (i) expenditure specifically targeted at women, (ii) public expenditure which has pro-women allocation, and (iii) mainstream public expenditure that has gender impact. The first category accounted for an amount of Rs 3,260 crore (0.85 per cent) out of the total budgetary outlay of Rs 375,223 crore. The second category accounted for Rs 10,596 crore (2.82 per cent). It was not possible to find out the total amount spent for the third category due to paucity of gender-disaggregated data for most mainstream programmes and services.

It may be mentioned that, in Orissa, most of the state budgetary allocation in the social sector has a women's component. The state budget estimate for the year 2002–03 is Rs 15,665.08 crore, out of which Rs 3,976.60 crore (23.3 per cent) is set aside for the social sector. This includes non-plan, state plan, and central plan allocations. Though the non-plan allocation for the state budget has increased from Rs 10,066.14 crore in 2000–01 to Rs 11,921.14 crore in 2002–03, there has been a gradual cut in the state plan and central plan allocations for the social sector. The state plan budget estimate for the social sector has decreased from Rs 1,091.67 crore in 2000–01 to Rs 9,03.06 crore in 2002–03. Similarly, the central plan budget allocation for the social sector has decreased from Rs 342.18 crore in 2000–01 to Rs 325.64 crore in 2002–03 (Government of Orissa 2003c).

In the revised estimates (RE) of Orissa Budget 2001–02, the state plan allocation for the social sector was Rs 2,281.64 crores, which was only 11.37 per cent of the total state budget. From this, a sum of Rs 619.76 crore (27.16 per cent) was earmarked for four sectors that have women components. These are agriculture and allied activities (Rs 11.32 crore), rural development (Rs 35.19 crore), industry and minerals (Rs 4.29 crore), and social services (Rs 568.96 crore). However, only Rs 243.45 crore is expected to have been spent under the women's component, comprising Rs 1.49 crore for agriculture and allied activities, Rs 11.73 crore for rural development, and Rs 230.27 crore for social services. Again out of the

total budgetary allocation (RE) of Rs 20,075.45 crore in 2001–02, the Department of Women & Child Development accounts for only Rs 242.69 crore (1.21 per cent).

Women specific schemes are those schemes (whether under state plan, non-plan, central plan, or centrally sponsored plan) in which only women are beneficiaries and which have an accounting head in the Demand for Grants of the concerned department. Schemes in which both women and children are beneficiaries are considered as a part of the pro-women category scheme.

The total allocation of funds to such women specific schemes across all departments in the Orissa budget, for the years 2000–01, 2001–02, and 2002–03 are shown in Annexure Table 31. Plan allocation to such schemes is more than that of the non-plan allocation, both for the budget estimate (BE) as well as the RE. The BE of the women specific programmes was Rs 281,891 thousand in 2000–01, which decreased by 68.14 per cent to Rs 89,804 thousand in 2001–02, before marginally increasing by 17.71 per cent to Rs 105,723 thousand in 2002–03. In the year 2000–01, the RE (revised estimate) had decreased by 44.87 per cent over BE and AE had decreased by 29.81 per cent over RE (Annexure Table 31). This shows that not only are there budget cuts in the plan allocations for women specific schemes but that there is also non-utilisation/ underutilisation of the allocated resources for these schemes. The low level of resource allocation for the women specific schemes (less than 1 per cent of the State Budget) shows that gender sensitivity has not significantly or directly influenced budgetary allocations so far.

Women are also included in other general schemes of all departments. This becomes clear when we look at the department-wise funds allocated for various women specific schemes for the year 2000–01 (Annexure Table 32). Only nine departments have women specific schemes. The Department of Women and Child Development

(W&CD) has the maximum number of women specific schemes (seven) followed by the ST & SC Development Department (three) and Industry Department (two). The other six departments have only one woman specific scheme each.

The Schemes of the Department of Women and Child Development and the Department of Health and Family Welfare have the maximum impact, both directly and indirectly, on the lives of women. However, budgetary allocations for these two departments for the years 2000–01, 2001–02, and 2002–03, as shown in Annexure Table 33, do not present an optimistic picture.

6.8 Violence Against Women

According to the National Family Health Survey-2 (NFHS-2), at least two in every seven married women in Orissa have experienced domestic violence since the age of 15 years, and at least one in eight has experienced domestic violence in the past 12 months. Some of the reasons for domestic violence are suspicion of fidelity, unfaithfulness, not respecting the in-laws, and going out without informing the husband. Apart from domestic violence, women in general are subjected to non-domestic violence (with rape being the major one) at different points of time in their lives. Others include eve-teasing, and sexual harassment at the work place.

Accurate figures on cases of violence against women are hard to get, since some of these cases remain unreported. Some researchers are of the opinion that the number of unregistered cases is very high, more than that of the registered cases. Whatever the situation may be, the overall reported cases of violence against women in Orissa have increased by 139 per cent, from 1,999 cases in the year 1990 to 4,774 cases in the year 2000, as per the Crime Branch Police, Government of Orissa (Table 6.8). The total cases of violence against women have shown positive annual growth rate in all the 11 years between 1990 and 2000. The annual growth rate is especially high in the period 1993 - 1996.

The violence and crimes committed against women are of various forms and include rape, molestation, eve-teasing, kidnapping/abduction, dowry suicide/homicide, dowry torture, and immoral trafficking. Of the 38,205 total reported cases between 1990 and 2000, the percentage of molestation was highest (35.23 per cent), followed by dowry related violence (25.37 per cent), rape (15.55 per cent), kidnapping/abduction (10.17 per cent), and non-dowry related cases (9.60 per cent). However, during 2000, cases of atrocities on women such as rape, eve-teasing, kidnapping/abduction, and immoral trafficking have decreased in relation to the previous year, whereas an increase was noticeable in the case of molestation and dowry related violence.

As per the information supplied by the Home Department, Government of Orissa, there were 725 rape cases reported in the year 2003 compared to 790 cases in 2001. Similarly, 183 eve-teasing cases were reported in the year 2003 compared to 201 cases in 2002 and 191 cases in 2001. There is also a decline in the number of kidnapping/abduction of women cases, as 421 cases were reported in 2003 as compared to 440 cases in 2002 and 431 cases in 2000.

The annual growth rate of registered rape cases is positive for all the years except 2000. The average annual growth rate of rape cases registered in Orissa during 1990–2000 is 11.14 per cent, which is higher than the average annual growth rate of rape cases in India (4.8 per cent during 1990–98). In the year 1999, the highest number of rape cases were registered in Mayurbhanj district (Annexure Table 34) and the annual growth rate of rape cases is higher in Nayagarh district. Of the 816 cases reported in 1999, 779 cases (95.47 per cent) were found true, but only 382 cases (46.81 per cent) were charge-sheeted and only 3 cases (0.37 per cent) were convicted. The very low rate of conviction may have indirectly encouraged criminals to commit such crimes against women.

Some facts regarding rape in Orissa are as follows (Das 1994b; Das and Das 1992):

- (i) In one-fourth of rape incidents, the accused are men from the same village;
- (ii) The accused could be distant strangers or close relatives;
- (iii) The reaction to rape cases is spontaneous, but transitory;
- (iv) Women's organisations do not show a dogged determination to fight cases to their logical end; and
- (v) The press plays a half-hearted role, as it dramatises events and then leaves them abruptly according to its convenience (see also Box 6.4).

Incidents of molestation in the state have increased from 280 in 1990 to 1661 in 2000, with an average annual growth rate of 6.32 per cent. Apart from rape and molestation, eve-teasing of women, particularly the younger ones, is a regular phenomenon in Orissa. It has been found that in the 1990s incidents of eve-teasing have increased in the state with an average annual growth rate of 5.62 per cent. Like other crimes committed against women, incidents of kidnapping/abduction in Orissa have also increased from 295 to 358 between 1990 and 2000 with an average annual growth rate of 3.47 per cent (Table 6.8).

The Dowry Prohibition Act, 1961 has banned the practice of dowry. However, the practice of dowry still continues. Harassment of women for dowry is a serious social concern. Dowry related violence is of three types, viz. dowry suicide, dowry homicide and dowry torture. In Orissa, a total of 9691 incidents of dowry related violence were registered between 1990 and 2000, as compared to 330 during 1983–89. Of this, 5.40 per cent were dowry suicides, 30.89 per cent were dowry homicides and the remaining 63.70 per cent were incidents of dowry torture. According to official records, there has been a marked increase in the annual growth rate of dowry related violence every year with the exception of 1999. The average annual growth rate of dowry related violence during the 1990s was 16.46 per cent. The incidents of dowry homicides and dowry tortures are continuously increasing, while the incidents of dowry suicides have fluctuated between 30 and 71 during this period (Table 6.8).

The important facts about dowry-related violence in Orissa are as follows: (i) Dowry-related deaths are very low in tribal districts; (ii) The percentage of dowry-related deaths is higher in rural areas than in urban

Table 6.8
Reported Cases of Violence Against Women in Orissa

Type of violence cases	Reported cases of violence against women										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Rape	250	309	326	405	422	562	617	683	796	816	753
Molestation	912	944	902	1064	1123	1238	1281	1363	1418	1555	1661
Eve teasing	-	-	106	131	150	140	169	176	194	183	154
Kidnapping abduction	295	299	252	314	295	325	468	405	446	429	358
Dowry suicide	60	71	49	45	43	39	37	54	55	30	41
Dowry homicide	80	98	155	187	265	314	354	324	387	382	448
Dowry torture	176	214	252	376	488	565	710	727	901	875	889
Non-dowry	215	183	168	207	302	377	405	413	499	445	452
Immoral trafficking	11	9	12	8	13	24	16	11	11	26	18
Total	1999	2127	2222	2737	3101	3584	4057	4156	4707	4741	4774

Source: Human Rights Protection Cell; and Crime Branch of Police, Government of Orissa.

Sexual Crime and Punishment

In the early 1990s four ladies were staying at Saheed Nagar area of Bhubaneswar in a tin-roofed house. Two of them were students, and the other two were working in a rope-making unit at Mancheswar. Two of them hailed from Narasinghpur, Cuttack and the other two were from Balasore. Two boys who were brothers of two of the girls were also staying in that rented house. Three young persons approached the ladies and proposed staying with them. The proposal was unacceptable to the ladies. One night in October 1992, the same three persons broke open the door safe in the knowledge that the brothers were not around. Two of the girls managed to escape. The other two were raped several times. The girls who escaped made an effort to awaken the people in the neighbourhood. Some people came out but did

not intervene. Meanwhile, the girls who escaped telephoned the police station from a shop nearby. Around dawn, the police arrived. Many people had gathered while the girls were yelling helplessly from inside. One rapist managed to escape and the police arrested the other two. The medical report confirmed rape. One of the rapists was the son of an engineer and the other two were shopkeepers. The case (Saheed Nagar PS, case no. 654, dated 22 October 1992, u/s 376/380/506/457/34, IPC/27, Arms Act/9 (A), I. E. Act) is sub-judice. The English and vernacular newspapers (*Sambad* 25 October 1992) reported the incident, which was also reproduced by Das and Das (1992). But there was no reporting on the follow-up action.

Source: (i) *Sambad*, Bhubaneswar, 25 October 1992; (ii) Urmimala Das and Bibekananda Das (1992), 'Rape Violence in Orissa', mimeo, Women's Studies Centre, Berhampur University, Berhampur.

areas; (iii) More than 90 per cent of dowry-related deaths occur in joint-family settings; (iv) In most of the cases, parents of victims register complaints; (v) There are more dowry-related deaths among women in the 19–25 year age group and most of the deaths are within five years of marriage; (vi) The majority of the dowry-related deaths take place among upper caste Hindus, viz., Brahmin, Karan, and Khandayat, whereas dowry deaths are much lesser among Muslims and tribal communities of Orissa; and (vii) Daughters-in-law are killed by burning, strangulating, beating, and poisoning (Das 1994b; Das and Das 1991).

Dowry is determined, in most cases, through bargaining between the families of the bride and bridegroom with the bride's family having to bear the financial burden. In some cases, even if the bride's family is unable to pay, they make a promise to give the money afterwards so that the marriage can go ahead. When the bride's family fails to fulfil the dowry demands after marriage, the problems start, and, in most cases, degenerates into violence against the newly wed woman, sometimes leading to her death.

Another form of dowry in Orissa involves 'flow of payment'. In these cases, the bride's family, usually richer than the bridegroom's family, invests in the education of a prospective bridegroom, generally meritorious and from a poor family. This is done after the groom has given a verbal agreement to marry the girl after completing his education, which usually assures him a government job. The marriage takes place without any demand for 'stock of goods'. But this practice has stopped due to massive unemployment problem and uncertainty of jobs in the state. At present, the dowry demand is in the form of cash and goods—both movables (consumer durables) and immovables (land and building).

With increasing consumerism, the nature of goods demanded for dowry has also changed. For example, the dowry demands by a government employee of Class III level has changed from bicycle, wristwatch, and transistor in the past (in the 1950s and 1960s) to two-wheeler, colour television and refrigerator, although these goods are beyond the means of many families in Orissa.



There has been an increase in dowry-related violence in spite of the enactment of the Dowry Prohibition Act 1991 by the state government. Non-governmental organisations (NGOs) are also being given financial assistance by the state government to propagate and organise dowry-less marriages. Anti-dowry campaigns, seminars, workshops, and street theatres are being conducted to create awareness. Special instructions have also been issued by the state government for initiation of disciplinary action against its employees involved in dowry offences. Despite these measures, the problem continues.

Dowry is a social evil and a cognizable offence under law. Unemployment and the craze to earn easy money in this age of consumerism, are some of the factors responsible for increasing dowry offences. Nowadays, men consider marriage as a good source of getting easy money and property from the parents of brides. Unless and until the attitude of the dowry takers and givers is altered, this social menace cannot be eradicated through framing laws and rules. Creating social awareness among the masses regarding the evils of the dowry system, promoting women's education and encouraging economic self-dependence of women would go a long way in eliminating the dowry menace. Further social ostracism of persons accused of dowry, may work as a deterrent to others thereby putting an end to this evil practice.

There has been a marginal rise in the sexual harassment cases in the state despite the guidelines being laid down by a Supreme Court Order dated 13 August 1997 (Annexure Table 34) for the prevention of sexual harassment of women employees at the workplace. In February 1998, an amendment to the Central Civil Services (Conduct) Rules, 1964, was carried out to give effect to the guidelines. The Ministry of Labour has also amended the Industrial Employment (Standing Orders) Act 1964 to make the Supreme Court guidelines applicable to private employees. Following this, the National Commission for Women formulated a code of conduct in accordance with the Supreme Court directive. The code requires all

organisations, both government and private, to set up complaint committees for investigating charges of sexual harassment. The Supreme Court has ordered that women should head all complaint committees, with at least half of the committee members being females (National Commission for Women 2001a, b). Notwithstanding these legal measures, sexual harassment of women employees in their places of work regularly takes place either explicitly or implicitly. This often remains unreported due to social and economic reasons.

There has been a declining sex ratio in many states (e.g. Punjab, Haryana, Gujarat) in India. The sex ratio is also unfavourable in the developed coastal districts of Orissa, such as Khurda, Nayagarh and Cuttack. Numerous studies of the prevalence of female infanticide and foeticide raise the dual issues of the growing burden of dowry and of religious rituals. The prevalent culture of preferring a son to a daughter is reinforced by religious rituals and practices. There is a strong belief amongst Hindus that only sons can conduct funeral rites if one is to attain *moksha*. This belief is central to the desire to have a son. Sons are also preferred on economic grounds as the parents can stay with them in their old age. Reform in such rituals and beliefs is therefore, essential.

Non-domestic violence takes many other forms such as: (i) caste violence against *dalit* women by upper caste, as in Kumarpur village in the southern bank of Chilika, (ii) child sexual abuse, (iii) obscene phone calls and throwing of acid by male students on fellow women students, who refuse to reciprocate their sexual advances, (iv) killing of widows and single women over property issues by branding them as witches, mostly in tribal districts of Keonjhar and Mayurbhanj, (v) the so-called honour killing of young couples who defy social codes of marriage and marry outside their caste or community, as in coastal districts, and (vi) parading women naked in the community for minor offences.

As per the information supplied by the Home Department, Government of Orissa, the rise in

violence against women are due to: (a) action of anti-social elements (either at their work places, isolated locations or at market places); (b) lack of awareness in society; (c) declining moral values and wide circulation of obscene literature; (d) increase in the use of alcohol and narcotic substances; and (e) increasing unemployment and poverty coupled with the craze to earn some easy money. The rise in violence against women may also be due to the exposure to electronic media and films that openly depict sex and violence. The violence against women was perhaps not adequately reported earlier and thus was invisible to some extent.

6.9 State Sponsored Support Services

The major alternate legal support services for women victims of violence in the state are following: (i) State Commission for Women (constituted under the Orissa State Commission for Women Act, 1993), operating at the state level since 1993; (ii) Orissa State Social Welfare Advisory Board, operating at the state level since 1954; (iii) Orissa Mahila Vikas Samabaya Nigam, operating at the state level since 1991; (iv) Dowry Prohibition Advisory Board, operating at the district level since 2000; (v) Complaint Committee on Sexual Harassment of Women at Work Place, operating at the district level since 1998; (vi) Committee to Counter Atrocities Against Women, operating at district level since 2001; (vii) Legal Services Authorities, operating at the state, district and taluk levels since 1996; (viii) Human Rights Protection Cell; (ix) Short Stay Homes for Women and Girls; (x) Family Counselling Centre; (xi) Task Force on Women and Violence, 1994, (xii) National Alliance of Women; (13) Mahila Police Stations; (xiv) Network of Law Colleges of Orissa for the Protection of Child Rights, operating at state level since 2002; (xv) Committee on sexual harassment of women at the workplace operating at the district and state levels.

The State Commission for Women, constituted on 30 November 1992, is empowered to act as a civil court and to recommend criminal prosecution against any person accused of an offence against women. It also interacts with the police for systematic follow-up

of pending cases. The data provided by the State Commission for Women for the period 1993 to 2000 is shown in Annexure Table 34. The annual growth rate of the registered cases of violence over the period fluctuates between -17.09 and 112.41. Only on four occasions is the annual growth rate positive. In the year 1994, the annual growth rate of registered cases was the highest (112.41 per cent), whereas, in 1999, it was the lowest (-17.03 per cent). However, the total number of registered cases has increased from 935 to 2343 during the period 1993 to 2000, i.e. an increase by one and half times during a span of seven years.

The women who are confronted with cruelty, desertion, separation, conviction and imprisonment for crime, matrimonial disputes like torture, maintenance, bigamy, obtaining dowry articles, and domestic harassment, have begun filing their applications before the Legal Services Authorities/ Committees working in the state. After the scrutiny of their applications, the different Legal Services Authorities/ Committees are extending benefits to the women by taking various effective steps. These involve conciliation by way of amicable settlement, engagement of advocates at state's cost and mediation with the help of permanent and continuous Lok Adalats functioning in all the districts of the state. The women are exempted from the limit of annual income and are entitled to free legal aid. Between 2000 and 2003 (four years), 2088 distressed women were provided free legal support for redressal of their grievances before the judicial courts.

The police, by themselves, cannot control violence against women, as some of the cases are outcomes of social evils and conservative attitudes of our society. Therefore, in order to contain the violence and crimes committed against women, close co-operation among various agencies working at the state level, including NGOs, is essential. This will lead to successful detection, prompt apprehension of the accused persons, proper investigation and restoration of the victims' rights.

The following measures have been taken by the state police to curb violence and crimes against women: (i) Police patrolling is being intensified near women's institutions, fairs, temples, parks, and other public places; (ii) Strict implementation of factory laws that regulate the working hours for women is being ensured; (iii) Frequent raids are being conducted against the circulation of obscene and pornographic literature; (iv) Liaison is being maintained with social organisations/ shelter homes and the State Commission of Women, who are involved in educating the public in favour of women; (v) All rape and immoral trafficking cases are being treated as Special Report Cases for speedy and successful investigation; and (vi) Women Police Stations have been set up in areas such as Cuttack, Bhubaneswar, Rourkela, Sambalpur, Berhampur, and Koraput.

6.10 Policy Implications

Since gender inequalities harm people's wellbeing and constrain a country's development prospects, there is a compelling case for public action for promoting gender equality. The state has a crucial role in improving the well being of both women and men. The state can obtain substantial social benefits by improving the absolute and relative status of women and girls. Public action is particularly important, since it is extremely difficult for individuals alone to change social, political, economic, and legal institutions that perpetuate gender inequalities. Some of the measures that would help in promoting gender equality are outlined below.

6.10.1 General Policy Measures

- (i) Institutions may be reformed to establish equal rights in terms of legal, social, and economic opportunities for women and men.
- (ii) Economic development can be expedited to strengthen incentives for equal resources and participation. Economic development is typically accompanied by an expansion of investment in infrastructure for fuel, transport, and provision of safe drinking water. This tends to reduce the time needed by women and girls for household

activities. This will, in turn, help women in improving their health and their participation in income-generating activities and also help girls in their school attendance.

- (iii) Active policy measures can be taken to reduce persistent disparities in control over resources and political voice (World Bank 2000).

6.10.2 Specific Measures

The combined effects of institutional reforms and economic development usually take time to be realised. Hence, in the short and medium term, active measures are required. These are: (i) reducing the cost of schooling, (ii) redesigning financial institutions by simplifying banking procedures and delivering financial services closer to homes, markets, and workplace, (iii) implementing gender sensitive land reforms that provide joint ownership to both husband and wife, or enable women to hold independent land titles, and (iv) providing public support for out-of-home child care services. Most of the above measures will reduce the amount of time spent by women and girls on their unpaid work. Thus, it will allow women to engage themselves in more productive and paid work and train girls to attend schools (World Bank 2000). There is a strong case for state intervention to promote gender equality through these measures.

Other measures more specifically relevant to Orissa are:

- (i) Raising social awareness about the importance of female education;
- (ii) Spread of female education through scholarships and other incentives, increasing investment on female education, and installing separate infrastructure like ladies toilets and common rooms in the existing educational institutions;
- (iii) Reservation of seats for girl students in Medical and Management Colleges;
- (iv) Reservation of posts in the Student Unions in colleges and higher educational institutions, and reservation of seats for women in the State Legislative Assembly by political parties;

- (v) Strict prohibition of illegal sex determination tests with severe punishment for offenders;
- (vi) Encouraging vasectomy as a family planning instrument to reduce the total burden of family planning borne by women;
- (vii) Enforcing Immunisation programmes and providing access to safe drinking water, food, and nutrition to reduce female infant mortality;
- (viii) Ensuring more beds in hospitals for women patients and for women-specific diseases;
- (ix) Ensuring adequate supply of fuel, food and water, at the village level and setting up of baby care and child care centers;
- (x) Checking deforestation, to reduce the burden of Extended SNA activities of women;
- (xi) Proper implementation of Equal Remuneration Act for equal wages and organisation of women wage workers;
- (xii) Providing Fast Track Special Courts, with at least half of the judges being women, to deal with violence against women; and activating Alternate Legal Support Services in the state;
- (xiii) Strict implementation of Dowry Prohibition Act against offenders and raising consciousness against dowry by social activists;
- (xiv) Restriction on exhibition of sex and violence on television and films;
- (xv) Proper care of single, poor and elderly women by the state;
- (xvi) Equal treatment for disaster-affected and displaced women in relief and rehabilitation; and
- (xvii) Increasing budgetary allocation for departments dealing with women and girl child and for women-related development programmes in the state.

6.10.3 Economic Reform and Women

A comprehensive economic reform programme is likely to affect men and women differently. Some of the effects may be indirect. The scant literature on the gender implication of economic reforms, especially due to the downsizing of the public sector, can be

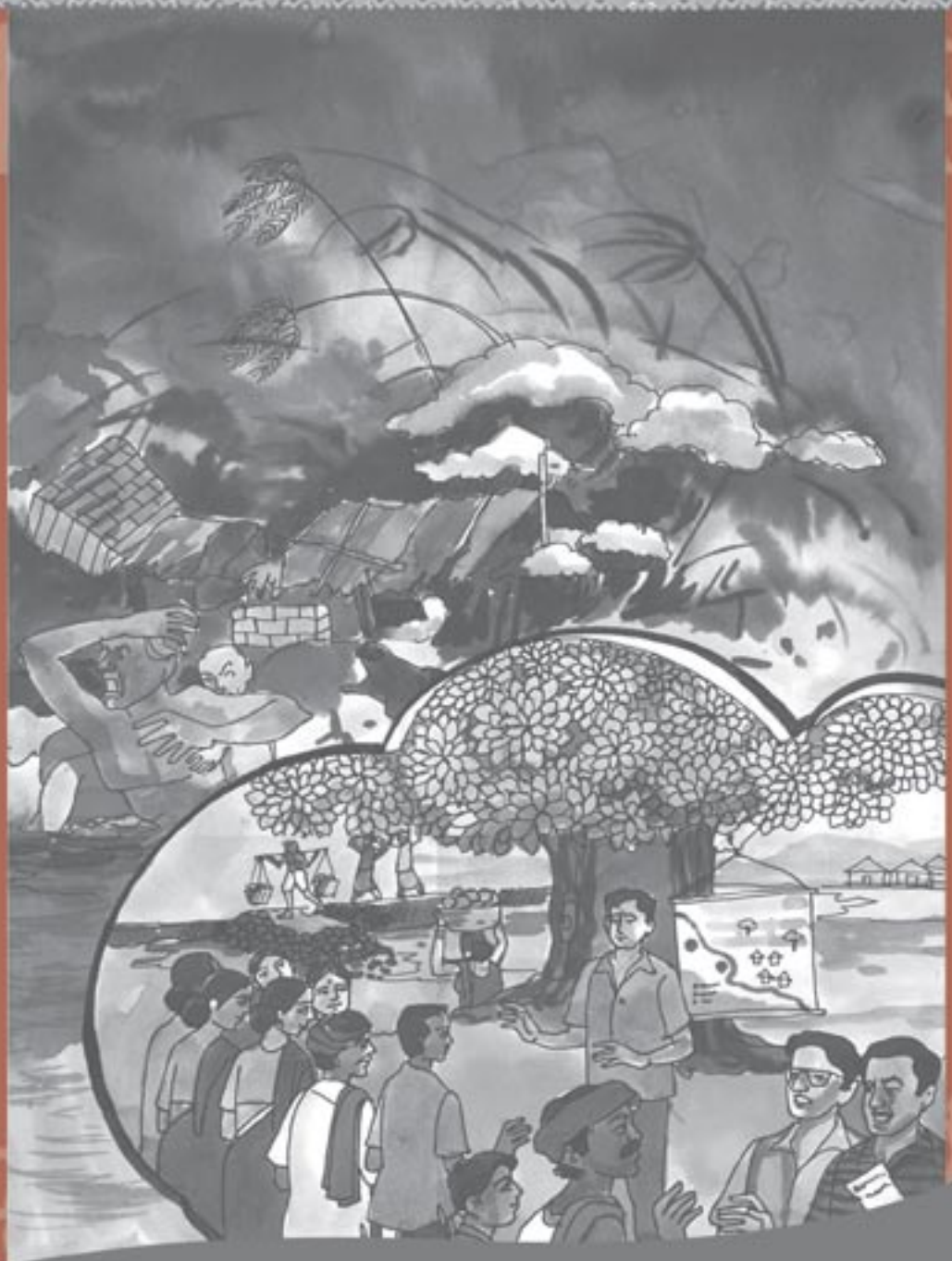
summarised by four hypotheses (Rama 2002). First, economic reforms aimed at moving from central planning to market economy, are associated with a feminisation of employment. Second, if women have less education than men, the gender gap in labour earnings may increase due to economic reforms. Third, economic reforms, particularly downsizing of the public sector, may also hurt women more than men because the public sector usually offers benefits that are highly valued by women, such as maternity leave, more flexible working hours, child care facilities, as well as reservation of certain posts for women. These type of benefits are less common in the private sector and are generally not offered in the informal sector. Fourth, women are more likely than men to withdraw from the organised labour force after downsizing of the public sector during economic reforms.

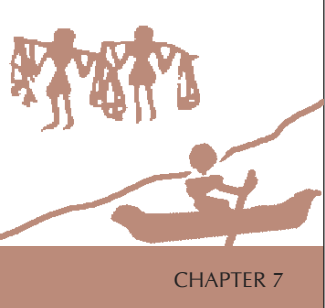
The entry of multinationals and liberalisation of international trade has adversely affected the growth of small-scale industries (SSI) and informal manufacturing sectors, particularly in the sub-sectors of traditional manufacturing firms. This has occurred in both rural and urban areas where large numbers of women are employed. This has been further aggravated by de-reservation of items that were once manufactured exclusively by SSI units. For instance, there has been an all-round decline in cottage industries, such as basket-making, mat-making, and weaving, where many women are employed. Employment generation in this sector has declined from 128,218 in 1990–91 to only 32,782 in 1999–2000, thus adversely affecting the employment opportunities for women.

Special policy measures, such as programmes targeting women who lose jobs as a result of downsizing, are required. These can be modified depending on the magnitude of the gender impact on employment, earnings, and well being. Policy adjustments for economic reforms should be gender neutral.



CHAPTER 7 **Vulnerability Reduction for Sustainable Development In the Context of Natural Disasters**





Vulnerability Reduction for Sustainable Development: In the Context of Natural Disasters

The term 'disaster' has been defined by the United Nations as 'a serious disruption of the functioning of a society, causing widespread human, material or environmental losses, which exceed the ability of the affected society to cope using its own resources'. By this definition, not every fire, earthquake, drought, epidemic, or industrial accidents constitute a disaster, only those where the losses exceed a society's ability to cope without external aid is called a disaster.

Most classifications of disaster identify two main types: natural and man-made. Natural disaster may be classified further into three sub-categories:

- Sudden impact disaster, which includes floods, earthquakes, tidal waves, tropical storms, volcanic eruptions, and landslides.
- Slow-onset disaster, which includes drought, famine, environmental degradation, deforestation, pest infestation, and desertification. These disasters are usually the result of adverse weather conditions or abuse of natural resources such as land, and forests.
- Epidemic disasters such as cholera, measles, dysentery, respiratory infections, malaria, SARS, and HIV.

The Brussels-based Centre for Research on the Epidemiology of Disasters (CRED) defines a 'natural disaster' as a situation or event that overwhelms local capacity, necessitating a request for national or international assistance. For disaster to be entered into the CRED's Emergency Events Database (EM-DAT), at least one of the following criteria must be fulfilled:

- 10 or more people reported killed,
- 100 people reported affected,
- a declaration of a state of emergency or
- call for international assistance.

Munich Re, a reinsurance company that specialises in the disaster business, classifies natural catastrophes as 'great' if the ability of the region in which they occur is distinctly overtaxed, making interregional or international assistance necessary (F & D, 2003). This is usually the case when thousands of people are killed, hundreds of thousands are made homeless, or a country suffers substantial economic losses, depending on the economic circumstances generally prevailing in the affected country.

A natural disaster can best be understood as a combination of a natural hazard like cyclone, flood, and drought, and the vulnerable conditions in which the victims find themselves. The latter determines the manner in which households or communities are affected when the hazard actually strikes. There are different ways and definitions for looking at what a disaster can do to a household, community, country, or even group of countries (Vrolijk 1997).

The potential impact of a natural hazard on a household can be very diverse. The vulnerability of a household is caused by its unsafe conditions and limited capacities it has in coping with consequences of a disaster. This vulnerability varies across households because the conditions of households and their capacity to cope with disasters are different. Worldwide experience shows that people with low incomes are generally more vulnerable: they generally live in low quality houses, at ill-equipped locations, and have limited opportunities to recover from disasters.

While looking at community programmes for vulnerability reduction, apart from taking into consideration household vulnerability profiles, one should also look at communal assets such as land, water supply systems, community buildings, schools



and places of worship. The community approach provides opportunities to reduce household vulnerabilities, especially in the case of the most vulnerable households and groups. The chronic poor may suffer more than non-poor; and the latter may become a transient poor due to natural disaster.

For eliminating chronic hunger and poverty, two broad strategies—growth-mediated security and support-led security—have been followed (Dreze and Sen 1989). The ‘growth-mediated security’ strategy has taken the form of fast growth of per capita real national income and the use of the gains of this growth to enhance the living conditions of the people on a wide basis. The ‘support-led security’ strategy has taken the form of promoting—through direct public support—entitlements to education, health care, and food without waiting for per capita national income to rise to a high level through general growth.

Two strategies have the common feature of marshalling public action to enhance living conditions (Dreze and Sen 1989). A combination of both strategies is desirable to avoid contraction in entitlements suffered by vulnerable groups, by distinguishing between the measures to prevent transient poverty due to natural calamities, and steps to eradicate chronic poverty, which sometimes leads to death arising out of starvation and malnutrition.

Relief measures cannot be a solution to the subsequent suffering from hunger and poverty. Prevention of transient hunger is really a question of entitlement protection. Recreation of lost entitlements of vulnerable sections through diversification of rural livelihoods, protection of environment, and development of social security systems is essential to stop transient hunger occurring due to flood, drought, and other natural disasters (Dreze and Sen 1990).

In the post-independent India, the relief system has become more systematic and expansive to combat transient hunger occurring due to drought, flood, cyclone, and other natural disasters. Recreation of

lost entitlements through wage-based employment opportunities along with conditional relief has made it possible to prevent transient hunger to a great extent.

The relief provided both by government and non-governmental organisations (NGOs) has played an important role to combat transient hunger, as evident in the 1999 Super Cyclone in Orissa. The major portion of gratuitous relief during natural calamities has, however, been provided by the government, while the contribution made by the NGOs, though commendable, is small in comparison.

In times of natural calamity, public action should be geared to win public confidence in respect of food availability, food stock distribution and stability of prices. Relief plays an important role in this situation. Direct food delivery is a common policy instrument for relief. Cash transfer can also help, even if aggregate food availability cannot be increased. Development economists, however, remain divided on the merits of monetising food aid (Ravallion 1992). Whether cash transfer or food relief will be more helpful to those in need must be judged according to specific settings, including the performance of food grain markets, argue Dreze and Sen (1989).

A combination of employment provision to help those willing to work (i.e. able-bodied rural poor) and unconditional relief to those who are obviously unemployable—the aged, sick and the handicapped is required. A timely domestic policy response can avoid potentially disastrous consequences of a natural calamity to the poor so as to prevent sale of assets and distress migration.

7.1 Orissa’s Experience with Natural Disasters

Orissa has been prone to both natural and man-made disasters since long. Natural disasters like flood and drought are, however, regular features in the state since 1965, but cyclones are less frequently observed (Table 7.1). Since 1965, Orissa has experienced floods for 17 years, droughts for 19 years, and cyclone for

Table 7.1
Natural Calamities in Orissa

Year	Natural calamities (Flood, drought, cyclone)	Year	Natural calamities (Flood, drought, cyclone)
1951	-	1977	Flood
1952	-	1978	Flood
1953	-	1979	Severe drought
1954	-	1980	Flood, Drought
1955	Flood	1981	Flood, Drought
1956	Flood	1982	Severe flood and drought, cyclone
1957	-	1983	-
1958	-	1984	Drought, Flood
1959	-	1985	Flood
1960	-	1986	Drought, Cyclone
1961	Flood	1987	Drought, Cyclone
1962	-	1988	Drought
1963	-	1989	Drought
1964	-	1990	Flood
1965	Severe drought	1991	Flood
1966	Drought	1992	Flood and Drought
1967	Cyclone, Flood	1993	-
1968	Cyclone, Flood	1994	Flood
1969	Flood	1995	Flood
1970	Flood	1996	Severe Drought
1971	Severe cyclone, Flood	1997	Flood/Drought
1972	Flood, Drought	1998	Drought
1973	Flood	1999	Super cyclone, Flood
1974	Severe drought, Flood	2000	Drought
1975	Flood	2001	Severe Flood
1976	Severe drought, Flood	2002	Severe Drought

Source: Board of Revenue, Cuttack and Special Relief Commissioner, Government of Orissa, Revenue Department Secretariat, Bhubaneswar.

seven years. These natural disasters have not only led to loss of human lives but also resulted in damage to, and loss of, property. The value of properties lost and damaged due to natural disasters has also been increasing over the decades (Table 7.2).

During the 1970s, an estimated value of property loss was around Rs 105 crore, which increased to nearly seven times in the 1980s and more than 10 times in the 1990s. Thus, natural calamities have

become a problem for the poor people of Orissa. Also they have led to serious fiscal imbalances by placing heavy demands on revenue expenditure, i.e., expenditure on restoring assets and reduction of revenue in terms of taxes and duties because of the crop loss and property loss.

Against the value of properties lost and damaged due to natural disasters in Orissa, the state has received a very small amount as grant from the Central



Table 7.2
Distribution of Properties Damaged, Deaths, and Injuries Caused by Flood, Drought, and Cyclone in Orissa

Year	No. of persons affected by the calamities	No. of human beings lost	No. of human beings injured	Value of properties lost and damaged (Rs in lakh)
1972	474,780	139	2	1,289
1973	434,877	17	11	291
1974	1,072,160	24	5	1,289
1975	432,902	45	7	344
1976	2,859,402	65	14	1,791
1977	1,194,550	71	8	922
1978	1,530,368	101	383	959
1979	6,323,461	51	11	3,257
1980	2,913,000	82	53	3,649
1981	616,834	109	966	1,256
1982	7,323,000	245	493	10,711
1983	2,103,578	119	29	4,939
1984	3,511,000	27	75	11,889
1985	2,782,289	194	558	13,888
1986	7,348,781	81	59	9,381
1987	6,932,347	171	192	6,646
1988	2,785,765	357	105	2,701
1989	6,369,689	285	75	3,710
1990	15,499,135	455	82	19,949
1991	7,610,509	363	62	22,925
1992	10,817,455	218	172	154,970
1993	6,079,666	353	46	77,908
1994	10,775,481	NA	NA	15,326
1995	3,941,351	197	142	10,995
1996	6,331,974	226	80	14,323
1997	3,486,481	985	140	6,855
1998	9,822,975	943	240	203,219
1999	12,569,000	9,885	2,507	

Source: (i) Government of Orissa, *Statistical Abstract*, various years, Directorate of Economics and Statistics, Bhubaneswar. (ii) Government of Orissa (2000), 'White Paper on Super Cyclone in Orissa', Revenue Department, December

government (Table 7.3). The state government, on the other hand, is not able to provide relief for the full amount of the value of property lost and damaged. It has only made some addition to the grants received from the Centre for natural calamities, which is not

sufficient to make up the loss of property due to natural calamities.

The cause and effect of drought is different from that of flood and cyclone. While in the case of flood and

Table 7.3
Year-wise Relief for Natural Calamities and Grants Received from the Centre

Sl. No.	Year	Relief on natural calamities (Rs lakh)	Grants (Rs lakh)
1	1974-75	385	0
2	1975-76	388	0
3	1976-77	369	0
4	1977-78	409	2
5	1978-79	403	0
6	1979-80	871	0
7	1980-81	1,688	56.55
8	1981-82	1,480	
9	1982-83	17,108	12,158
10	1983-84	1,798	1,526
11	1984-85	3,024	0
12	1985-86	3,066	0
13	1986-87	2,775	59.36
14	1987-88	1,450	500
15	1988-89	1,806	1,313
16	1989-90	4,598	0
17	1990-91	4,714	5,713
18	1991-92	4,919	0
19	1992-93	4,691	2,978
20	1993-94	7,742	2,978
21	1994-95	3,906	30.75
22	1995-96	7,946	7,708
23	1996-97	7,528	50.00
24	1997-98	8,991	4.00
25	1998-99	4,558	828.15
26	1999-00	82,764	49.62
27	2000-01	14,365	100.00

Source: Board of Revenue, Cuttack and Special Relief Commissioner, Government of Orissa, Revenue Department Secretariat, Bhubaneswar.

cyclone, the occurrence of the disaster is sudden and can be known only a few hours prior to its occurrence, the onset of drought is slow and not sudden. The possibility of drought is known much earlier than its occurrence, and there is usually sufficient time for mitigation of the disaster. The experience of Orissa with different types of natural disasters is discussed below.

7.1.1 Drought

Drought is a slow-onset natural disaster. It occurs mostly due to lack of adequate rain in the dry land areas or uneven distribution of rainfall during a particular year. In addition, recurring drought tends to reduce the water table. About 70 per cent of the total cultivated areas in the state are prone to drought. These areas lack not only irrigation facilities but also receive scanty rainfall. In some areas, rainfall, though plenty, is erratic. The severity of drought is measured by crop cutting experiment, and accordingly declaration of drought area is made.

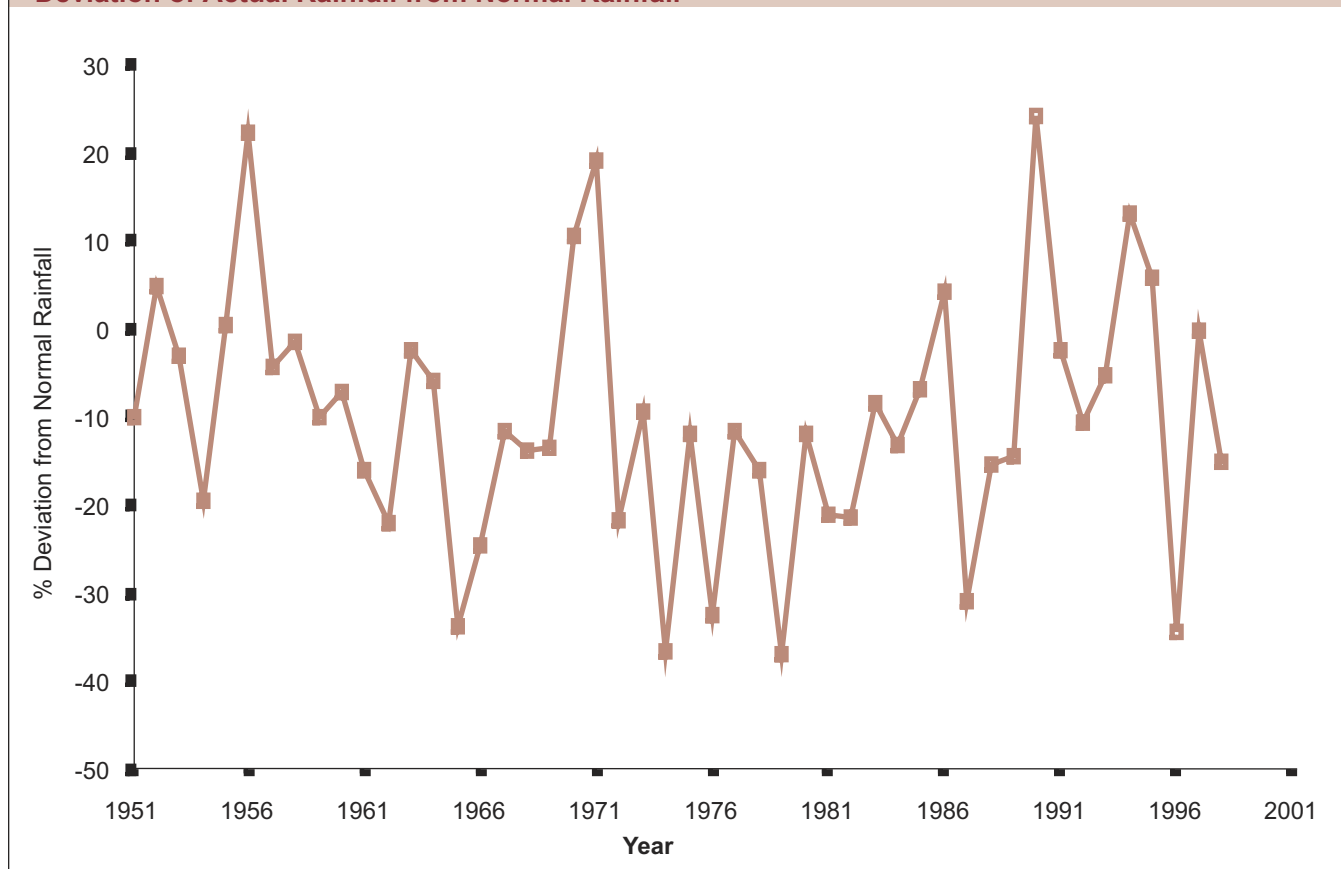
Though Orissa receives an average annual rainfall of the order of 1,500mm, there are wide variations from year to year. Fluctuating rainfall trends from 1951 to 2001 are shown in figure 7.1.

The frequencies of years with rainfall above and below the normal of 1,503 mm rainfall are given in Table 7.4. Less than 1,100 mm of rainfall occurred seven times since 1951—in 1965, 1974, 1976, 1979, 1987, 1996, and 2002. All these are marked as severe droughts years, wherein the drought caused considerable reduction in *khari* rice production. This suggests that there is at least one severe drought year in every decade, thus underlining a high degree of vulnerability of the state to drought.

Orissa has faced drought in most of the years in the latter half of the 1990s. During 1996-97, all districts (except Koraput and Malkangiri) were affected by drought. The drought was so severe that more than 50 per cent villages in the state had crop loss of 50 per cent or more (Table 7.5). The drought situation in 1997-98 was less severe, but the severity increased thereafter. The severely drought-affected districts in the state during the period were: Boudh, Jharsuguda, Balangir, Sambalpur, Bargarh, Nuapada, Sonapur, and Sundargarh in the western part of Orissa; Balasore, Jajpur, Nayagarh, and Khurda in the eastern part; Koraput and Malkangiri in the southern part; Mayurbhanj in the northern; and Dhenkanal and Angul in the central part (Table 7.6). More than half



Fig 7.1

Deviation of Actual Rainfall from Normal Rainfall

Source: Directorate of Agriculture and Food Production, Government of Orissa, Bhubaneswar.

Table 7.4

Frequencies of Rainfall during Different Decades

Rainfall interval (in mm)	Frequency during the decade					Total
	1951-60	1961-70	1971-80	1981-90	1991-98	
Above 1500	3	1	1	3	2	10
1100 to 1500	7	8	6	6	5	32
Less than 1100	-	1	3	1	1	6

Source: Directorate of Agriculture and Food Production, Bhubaneswar.

of villages in these districts had crop loss of 50 per cent or more.

During 1996-97, almost all districts of Orissa, excluding Koraput and Malkangiri, were affected by drought (Table 7.7). Around 84 per cent of the blocks in the state were affected. All blocks were

affected in 20 districts. Most severely affected districts (with more than 90 per cent villages affected by drought) were Balangir (99.61 per cent), Dhenkanal (95.71 per cent), Jharsuguda (92.84 per cent), and Nayagarh (90.64 per cent). Those were followed by Sambalpur (87.04 per cent) and Boudh (85.09 per cent).



Table 7.5
Crop Loss of 50 Per cent and More due to Drought during Different Years

Sl. No.		Year			
		1996-97	1997-98	1998-99	2000-01
1	No. of districts affected	28 (93.33)	15 (50.00)	26 (90.00)	29 (96.67)
2	No. of blocks affected	263 (83.76)	86 (27.39)	163 (51.91)	216 (68.79)
3	No. of GPs affected	3762 (71.51)	849 (16.14)	1686 (32.03)	2511 (47.74)
4	No. of villages affected	28,837 (55.96)	4688 (9.10)	11,431 (22.18)	16,219 (31.72)

Note: Figures in parentheses indicate percentage share.

Source: Government of Orissa, Revenue Department.

Table 7.6
District-wise Concentration of Villages having Crop Loss of 50 Per cent and More

Sl. No.	Years	No. of affected districts	Up to 25 per cent of total village	25-50 per cent of total village	50-75 per cent of total village	Above 75 per cent of total village
1.	1996 -97	28	Deogarh, Jagatsinghpur, Nabarangpur, Rayagada, Sundargarh	Bhadrak, Cuttack, Gajapati, Kalahandi, Nuapada, Puri	Bargarh, Ganjam, Kendrapara, Kandhamal, Keonjhar, Khurda, Mayurbhanj, Sonapur	Angul, Balangir, Balasore, Boudh, Dhenkanal, Jajpur, Jharsuguda, Nayagarh, Sambalpur
2.	1997-98	16	Balasore, Bhadrak, Jagatsinghpur, Kalahandi, Kendrapara, Mayurbhanj, Nabarangpur, Rayagada, Sambalpur, Sonapur	Gajapati, Ganjam, Malkangiri, Puri	Koraput	Nil
3.	1998-99	26	Bargarh, Bhadrak, Deogarh, Dhenkanal, Ganjam, Jagatsinghpur, Jajpur, Kalahandi, Kendrapara, Kandhamal, Koraput, Nabarangpur, Nayagarh, Nuapada, Puri, Sambalpur, Sundargarh	Angul, Jharsuguda, Keonjhar	Balangir, Balasore, Mayurbhanj, Sonapur	Boudh
4.	2000-01	29	Balasore, Bargarh, Cuttack, Gajapati, Ganjam, Kandhamal, Keonjhar, Koraput, Mayurbhanj, Nabarangpur, Nayagarh, Puri, Jagatsinghpur	Kalahandi, Kendrapara, Khurda, Rayagada, Sonapur	Dhenkanal, Malkangiri, Sundargarh,	Angul, Balangir, Boudh, Deogarh, Jajpur, Jharsuguda, Nuapada, Sambalpur

Source: Board of Revenue, Cuttack and Special Relief Commissioner, Government of Orissa, Revenue Department Secretariat, Bhubaneswar.



Table 7.7

District-wise Statement Showing Crop Loss of 50 Per cent or More Due to Drought

Sl. No.	Districts	1996-97			1997-98		
		Per cent of blocks affected	Per cent of GPs affected	Per cent of villages affected	Per cent of blocks affected	Per cent of GPs affected	Per cent of villages affected
1	Angul	100.00	100.00	79.41	—	—	—
2	Balangir	100.00	100.00	99.61	—	—	—
3	Balasore	100.00	88.72	75.98	16.67	6.23	2.86
4	Bargarh	83.33	69.39	71.78	—	—	—
5	Bhadrak	71.43	39.16	37.24	14.29	1.20	0.61
6	Boudh	100.00	96.55	85.09	—	—	—
7	Cuttack	100.00	62.95	50.00	—	—	—
8	Deogarh	66.67	16.98	3.53	—	—	—
9	Dhenkanal	100.00	100.00	95.71	—	—	—
10	Gajapati	100.00	81.13	38.87	85.71	51.89	42.89
11	Ganjam	100.00	94.37	72.92	100.00	52.70	35.67
12	Jagatsinghpur	100.00	36.97	22.17	75.00	32.73	19.57
13	Jajpur	100.00	98.35	79.13	—	—	—
14	Jharsuguda	100.00	98.33	92.84	—	—	—
15	Kalahandi	84.62	63.08	45.68	15.38	11.28	1.00
16	Kendrapara	100.00	72.20	51.01	77.78	40.49	19.22
17	Kandhamal	100.00	95.83	51.14	—	—	—
18	Keonjhar	100.00	90.98	74.25	—	0.41	—
19	Khurda	80.00	75.97	69.49	—	—	—
20	Koraput	—	—	—	78.57	62.94	53.56
21	Malkangiri	—	—	—	100.00	98.70	32.48
22	Mayurbhanj	100.00	97.15	71.08	7.69	1.58	0.98
23	Nabarangpur	10.00	8.78	7.02	30.00	5.41	1.45
24	Nayagarh	100.00	98.60	90.64	—	—	—
25	Nuapada	100.00	60.22	37.73	—	—	—
26	Puri	100.00	56.86	36.88	63.64	46.57	27.07
27	Rayagada	90.91	51.43	21.29	54.55	26.43	4.79
28	Sambalpur	100.00	91.73	87.04	22.22	5.26	3.31
29	Sonepur	100.00	65.00	69.87	33.33	37.50	19.61
30	Sundargarh	35.29	5.88	1.62	—	—	—
	Total	83.76	71.51	55.96	27.39	16.14	9.10

Table 7.7 Contd.



Sl. No.	Districts	1998–99			2000–01		
		Per cent of blocks affected	Per cent of GPs affected	Per cent of villages affected	Per cent of blocks affected	Per cent of GPs affected	Per cent of villages affected
1	Angul	100.00	64.09	36.37	100.00	94.44	82.20
2	Balangir	78.6	75.9	66.4	100.00	100.00	99.22
3	Balasore	100.0	87.5	69.0	16.67	1.17	0.30
4	Bargarh	66.7	46.9	24.2	91.67	70.41	24.17
5	Bhadrak	28.6	3.6	0.7	—	—	—
6	Boudh	100.0	96.6	86.9	100.00	98.28	77.51
7	Cuttack	—	—	—	85.71	20.50	4.10
8	Deogarh	100.0	54.7	9.3	100.00	100.00	84.78
9	Dhenkanal	50.0	16.9	9.6	87.50	73.26	57.78
10	Gajapati	—	—	—	71.43	23.58	6.22
11	Ganjam	50.0	17.8	6.8	100.00	51.80	13.38
12	Jagatsinghpur	37.5	22.4	12.4	62.50	35.15	18.76
13	Jajpur	10.0	5.8	3.4	100.00	96.28	75.74
14	Jharsuguda	80.0	39.7	27.2	100.00	100.00	94.24
15	Kalahandi	76.9	55.4	23.9	61.54	49.74	26.99
16	Kendrapara	55.6	24.9	12.0	77.78	52.68	34.54
17	Kandhamal	83.3	21.5	8.4	58.33	53.47	23.14
18	Keonjhar	92.3	68.9	48.6	53.85	16.39	5.63
19	Khurda	—	—	—	100.00	55.56	46.43
20	Koraput	14.3	3.0	0.3	7.14	4.57	5.63
21	Malkangiri	—	—	—	85.71	89.61	71.15
22	Mayurbhanj	92.3	76.6	56.4	15.38	3.16	1.93
23	Nabarangpur	40.0	8.8	3.0	20.00	14.19	7.04
24	Nayagarh	37.5	7.0	3.0	100.00	41.96	16.99
25	Nuapada	60.0	23.7	9.3	100.00	97.85	82.02
26	Puri	18.2	8.3	3.1	36.36	6.86	5.09
27	Rayagada	—	—	—	90.91	72.86	34.12
28	Sambalpur	44.4	15.8	9.8	100.00	93.28	91.19
29	Sonepur	66.7	60.0	61.0	100.00	36.25	28.05
30	Sundargarh	52.9	34.7	19.9	88.24	72.94	53.67
	Total	51.9	32.03	22.18	68.79	47.74	31.72

Source: Board of Revenue, Cuttack and Special Relief Commissioner, Government of Orissa, Revenue Department Secretariat, Bhubaneswar.

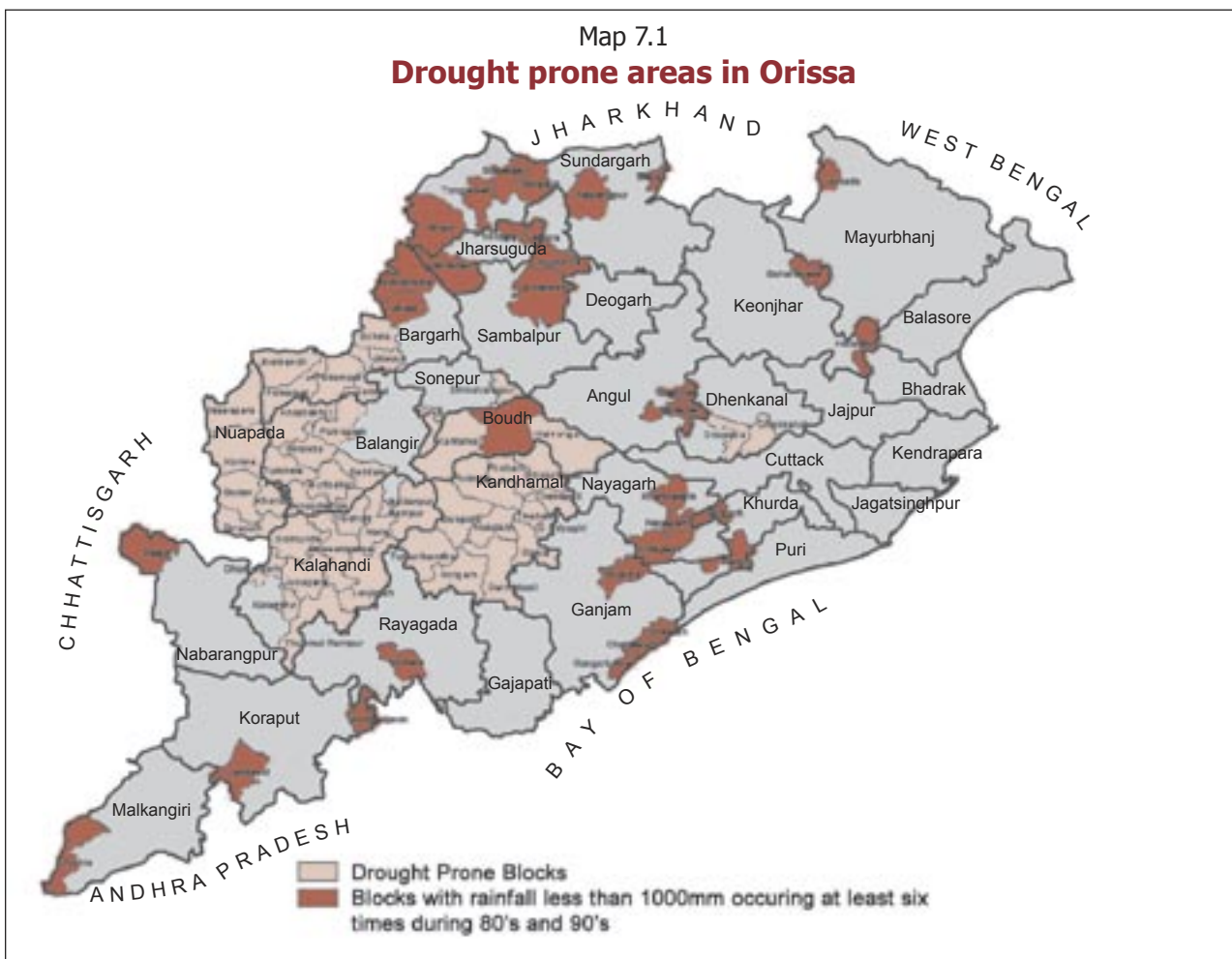


During 1997–98, though drought was less severe, more than half the villages in Koraput had crop loss of more than 50 per cent (Table 7.7). This was followed by Gajapati district, with around 43 per cent villages affected by drought. The drought of 1998–99 affected more than half the districts in the state (Table 7.7). But five districts, viz. Balangir, Balasore, Boudh, Mayurbhanj, and Sonapur, were severely affected, with more than half of the villages having crop loss of more than 50 per cent.

During 2000–01, while almost all districts (except Bhadrak) were affected by drought, it was severe in 11 districts, where more than half of the villages had more than 50 per cent crop loss. Balangir was the worst affected district, with almost all (99.22 per cent) villages affected by drought (more than 50 per cent crop loss).

While comparing the drought situation of different districts in the state in the second half of the 1990s, Table 7.6 reveals that Balangir and Boudh were the most drought-affected districts. During the period, more than 50 per cent villages in these two districts were affected thrice by drought. The districts with more than 50 per cent villages affected twice by drought during this period were Sonapur, Jharsuguda, and Sambalpur in western Orissa; Mayurbhanj in northern Orissa; Angul and Dhenkanal in central Orissa; and Balasore and Jajpur in the coastal belt. Half of the most drought-affected districts were from the western part of Orissa.

There is thus a need for concerted and intensive effort by the government to address this problem from a long-term perspective. The government has, however, identified contiguous patches consisting of



Source: Department of Agriculture and Food Production, Government of Orissa, Bhubaneswar.

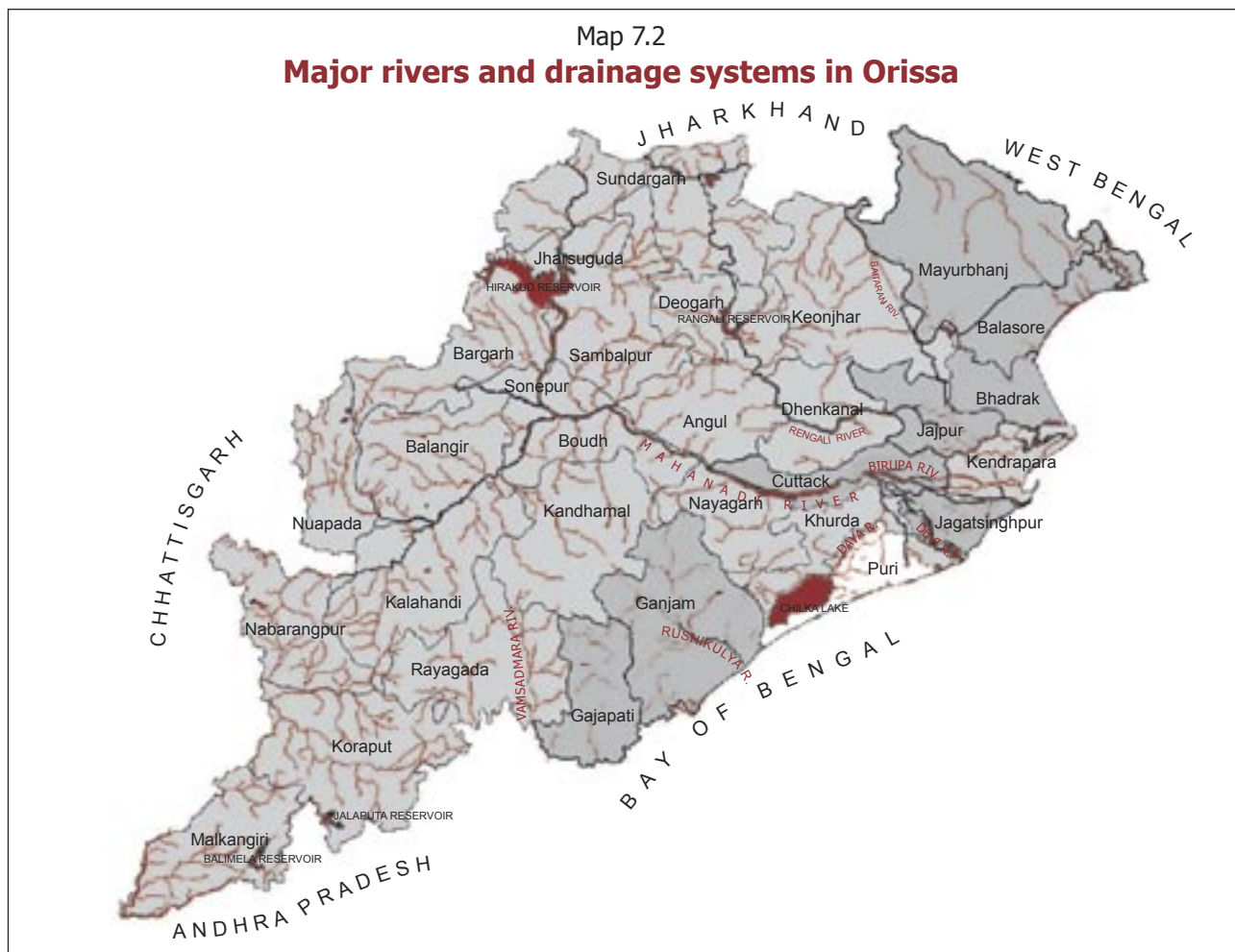
the subdivisions of Padampur, Balangir, Titilagarh, Patnagarh, Nuapada, Khariar, Bhawanipatna, and Kandhamal comprising of 47 blocks as chronic drought-prone zone (Map 7.1).

7.1.2 Flood

Like drought, flood is also a major concern for Orissa. The state has a number of major rivers, viz. Mahanadi, Brahmani, Baitarani, Rushikulya, Vansadhara, Budhabalanga, Subarnarekha, and others. Heavy rains in the upper catchment area as well as unusual rainfall in different districts cause flood in all major river systems of the state. Floods cause heavy damages to life and property. The problem is further accentuated when flood synchronises with high tides. This is because during high tide it becomes difficult for floodwater to enter into the sea, thereby affecting coastal areas heavily.

Floods and drainage congestion affect the lower reaches along the Subarnarekha river. Rivers Rusikulya, Vansadhara, and Budhabalanga also cause occasional floods. Rivers and drainage system of the state are shown in Map 7.2. The entire coastal belt is prone to storm surges, which are usually accompanied by heavy rainfall, thus making the estuary region vulnerable to both storm surges and river flooding. A few districts, in west Orissa, occasionally face flash floods too.

Orissa has faced many floods; with three severe floods since 1950—in 1955, 1982, and 2001. The flood of 1955 (in the Mahanadi system) was so severe that till the 1982 flood (Dalei Ghai), the water level of 1955 was the determining factor for laying the plinth of dwelling units of affected Niali and Kantapada blocks of Cuttack district. Orissa’s experience of flood for the



Source: Orissa Remote Sensing Application Centre, Department of Science and Technology, Government of Orissa, Bhubaneswar.



Table 7.8
Natural Calamities (Flood) in Orissa

Sl. No.	Years/ Months of occurrence	No. of districts affected	No. of villages affected	Population affected	Cultivated area affected (in ha.)	No. of house damaged/ collapsed/ washed away	No. of human casualties	No. of livestock casualties
1.	1972 (July)	5	3,514	1,738,400	NA	18,754	8	3,506*
2.	1975	8	7,527	3,140,542	1,048,05*	144,153	74	4,996
3.	1976	6	4,358	253,910	40,375 *	2,448	8	68*
4.	1977 (November)	10	4,680	2,161,000	458,612*	18,179	41	202*
5.	1978	12	3,727	2,601,379	627,076*	19,965	21	262
6.	1980	10	3,620	2,639,200	305,466	163,526	73	8,280*
7.	1981 (June)	1	1,017	NA	26,655	NA	NA	NA
8.	1981 (August)	4	NA	NA	3,690.45	1,717	15	NA
9.	1982 (August/ September)	8	NA	5,400,000	1,200,000	510,049	127	26,359*
10.	1984	8	6,960	3,511,177	392,448	19,394	27	459
11.	1985 (September)	7	7,609	1,937,979	102,272	69,831	2,401	NA
12.	1985 (August)	11	17,955	3,779,506	310,499	12,974	10	2,880
13.	1985 (October)	5	2,571	5,700,000	326,608	40,029	47	1,073
14.	1990 (May)	1		361,868	4,984.88	9,379	1	NA
15.	1991 (July)	11	9,649	3,786,544	123,000	32,389	29	449
16.	1991 (August)	7	12,572	6,997,637	539,000	64,381	23	696
17.	1992 (June)	5	3,396	1,835,529	47,394	14,845	7	107
18.	1992 (July)	10	9,281	2,716,000	168,676	72,479	25	222
19.	1992 (August)	7	7,866	3,048,000	201,000	73,224	11	1,068
20.	1994 (July)	16	4,540	2,832,247	527,696	NA	29	NA
21.	1994 (August)	5	1,336	1,097,361	138,432	NA	24	NA
22.	1994 (September)	18	5,368	3,116,364	351,531	NA	20	NA
23.	1995 (May)	23	31,796	7,184,264	222,840	152,542	50	372
24.	1995 (November)	20	23,945	11,346,000	1,386,800	35,683	26	NA
25.	1997 (June)	4	800	594,646	NA	7,765	-	14
26.	1997 (August)	13	5,652	2,140,648	NA	35,955	17	16
27.	1999 (July/ August)	7	2,486	1,772,788	149,848	7,488	10	NA
28.	2001 (July/ August)	24	18,790	9,678,000	8,087,000	212,296	102	18,149

* in acre

Source: Board of Revenue, Cuttack and Special Relief Commissioner, Government of Orissa, Revenue Department Secretariat, Bhubaneswar.



1910, 1911, 1912, 1916, 1918, 1919, 1942, 1967, 1968, 1971, 1972, 1973, 1982, 1986, 1987, 1991, 1992, 1994, 1995, and 1997. Orissa suffered from a series of heavy cyclones, mostly occurring during September–November, with the worst sufferer being Balasore district. Before independence, a major cyclone occurred on 22 September 1885 (with a loss of around 5,000 human lives), another on 31 October 1931 (killing around 20,000 human beings, mostly in Balasore), and two in October and November 1942. Being repeatedly devastated by cyclone, the people of coastal Orissa made little effort to cope with disaster and were to see their economic condition deteriorate day by day (Bhatta 1997). Recently the state has faced two severe cyclones: one in 1971 and the other in 1999, the latter being so severe that it has been termed as Super Cyclone.

1971 Cyclone

The 1971 cyclone was the first major cyclone that the state faced after independence. The cyclone affected the inland area with a gathered speed up to 175 km per hour and wrought havoc over vast areas, destroying crops, blowing off roofs of houses and buildings over an area of 21,273 sq. kms spread over the districts of Cuttack, Balasore, Puri, Mayurbhanj, Keonjhar, and Dhenkanal. In the then Cuttack district alone, 520,438 houses were damaged, and 33.04 lakh people were affected in 38 blocks and six urban local bodies (ULBs) spread over 7,310 sq. km. Cultivated area over 6,065 sq. km was affected and crops over 3,788 sq. km area were damaged. Around 7,397 human lives were lost and 77,921 cattle were killed in the district due to high tidal waves and devastating storm (Government of Orissa 1996).

The Koteswaram Committee, appointed by the Central Government to look into various aspects of the 1971 cyclone suggested certain measures to reduce the loss and damage of cyclone such as:

- Identification of coastal areas that are affected by high tide and cyclone.
- Selection of stronger buildings by the district authority for shelter during cyclone.

- Construction of two-storyed cyclone shelter houses in high tide affected area and one strong cyclone shelter house in areas affected by cyclone.
- Construction of higher foundation for houses.
- Construction of coastal embankment and afforestation in one kilometer width of sea coast.
- Issuing of advance warning by district authorities.
- Provision of deeper tube well in the area affected by saline water high tide.
- Educating people about cyclone disaster management/mitigation
- Implementation of model cyclone plan in the coastal areas.
- Issuing of a cyclone code by the state government, and
- Formation of the National Fund for Calamity Relief (NFCR) by the Central government.

Similarly, the Government of Orissa (Irrigation and Power Department) appointed a committee under the chairmanship of M.C. Pani in 1971 to estimate the loss and damage due to the 1971 cyclone, possible arrangement to mitigate cyclone, and to reduce human loss and loss to property. Important suggestions of the 31-page Report, published in February 1974, included:

- One kilometer wide protective circle near the seashore through afforestation and declaring this area as Reserve Forest.
- No permission to encroachers to settle in this protective circle and no entry for stray cattle.
- No permission to people to own settlements in low-lying areas.
- Fixation of sand dunes near the low-lying villages and two-storyed or one-storyed building by government, which will serve as cyclone shelters, and
- Implementation of *Cheri bandha*¹ system around tanks (Nayak 2002).

¹ Enclosure embankment used to protect tank or village from saline water.

Some other measures were:

- Maintenance of forest cover over the sand dunes.
- Protection of the mangrove forest, and extending it further all along the coast, this being nature's own defence system.
- Strengthening of the river embankments from the mouth of the river to a distance where the seawater reaches in the high tide period.
- Construction of dykes in the creeks so that saline water cannot enter but the rainwater can easily flow into the sea.
- Construction of cyclone-proof shelters in the cyclone-prone areas (Samal 2001).

Recommendations regarding establishment of coastal shelter belt plantations and constructions of cyclone shelters were implemented. However, there have been recently forces at work, which have disturbed the coastal eco-system, thereby increasing vulnerability to cyclones.

1999 Super Cyclone

During 1999, two cyclone hit Orissa within a period of two weeks. The first cyclone, which occurred on 17–18 October, affected mostly two districts, viz. Ganjam and Gajapati. The worst affected was Ganjam, with 139 human casualties and 3.59 lakh houses damaged. The second cyclone, which occurred during 29–30 October, affected 12 districts, the most affected being Jagatsinghpur, where 8,119 human casualties resulted (Table 7.9). Of these two cyclones, the second was much more severe compared to the first one and has been termed as the Super Cyclone.

The 1999 Super Cyclone, with speeds up to 300 km per hour, hit as many as 97 blocks, 28 urban local bodies, 1827 Gram Panchayats (GPs), and 15,676 villages with a total population of 1.26 crore. Nearly 10,000 human lives were lost, 15.80 lakh houses damaged, and 17.86 lakh hectares agricultural land affected (Table 7.9). More than three lakh cattle

Table 7.9

District-wise Villages and Population Affected by the 1999 Super Cyclone

Sl. No.	Districts	No. of Block/ ULBs affected	No. of GPs affected	No. of village/ wards affected	Total population affected (in lakhs)	Total agricultural land affected (in lakh ha.)	Loss of human lives	Houses damaged			
								Washed away	Fully collapsed	Partly collapsed	Total
1.	Balasore	8/3	155	1,748	12.26	1.41	49	11,030	34,660	46,000	91,690
2.	Bhadrak	7/2	166	1,356	13.47	1.83	98	3,777	25,655	74,966	104,398
3.	Cuttack	14/4	278	1,977	23.67	2.09	456	-	125,895	206,360	332,255
4.	Dhenkanal	8/3	144	1,092	0.70	1.38	51	-	7,909	53,902	61,811
5.	Jagatsinghpur	8/2	165	1,308	12.00	1.20	8,119	9,945	168,581	51,982	230,508
6.	Jajpur	10/2	242	1,160	15.50	1.88	188	-	22,032	92,601	114,633
7.	Kendrapara	9/2	205	1,567	14.00	1.70	469	40	150,000	195,000	345,040
8.	Keonjhar	3/1	59	546	2.50	1.25	31	1,164	5,363	39,084	45,611
9.	Khurda	8/3	124	1,167	13.11	1.02	91	-	30,000	65,540	95,540
10.	Mayurbhanj	9/2	45	341	1.98	2.07	10	-	6,000	3,000	9,000
11.	Nayagarh	2	40	1,700	1.50	0.37	3	-	196	14,059	14,255
12.	Puri	11/4	204	1,714	15.00	1.72	301	-	71,359	63,482	134,841
	Total	97/28	1,827	15,676	125.69	17.86	9,866	25,956	647,650	905,976	1,579,582

Note: ULB: Urban local bodies
Source: Board of Revenue, Cuttack.



were lost and over 90 per cent of school buildings, dispensaries, offices, government buildings, and roads in rural areas were damaged. Total loss due to the Super Cyclone was estimated at Rs 50,000 crore.

The 1999 Super Cyclone caused unprecedented loss of human lives, livestock, public and private properties including vital infrastructure and houses. The government relief works started as per the Orissa Relief Code. The cyclone-affected people received food materials (50,138 MT) for 15 days. House building assistance was given at the rate of Rs 3,500 for fully washed houses, Rs 2,000 for fully collapsed houses, and Rs 1,000 for partly collapsed houses. By June 30, 2000, Rs 270.65 crore had been disbursed for house building assistance (Table 7.10). For payment of ex-gratia to the next of kin of deceased (due to cyclone), Rs 25,000 from NFCR of the state and Rs 50,000 from the Prime Minister's Relief Fund (PMRF) were earmarked, thus amounting to a total

of Rs 75,000 to each. By June 2000, Rs 21.03 crores from the NFCR and Rs 38.41 crores from PMRF were paid by the district authorities.

Around 20 international NGOs, 20 national level NGOs, and 100 state level NGOs were involved in the relief and rehabilitation work in the flood/cyclone affected areas. Besides these, 49 public sector units and 12 states (viz. Andhra Pradesh, Delhi, Goa, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Tamil Nadu, and West Bengal) participated in various relief and rehabilitation activities. The West Bengal and Andhra Pradesh governments supplied Rs 6.13 crores and Rs 6.56 crores worth of relief materials respectively (Government of Orissa 2000). The international response to the 1999 Super Cyclone, even without an SOS call by the Government of India to the international community, was tremendous. The role of international bodies such as UNICEF and UNDP and that of international NGOs (INGOs) [specially

Table 7.10
House Building Assistance (situation as on 30 June 2000)

Name of the district	Fully washed houses	Fully collapsed houses	Partially collapsed houses	Total	Assistance required (in lakhs)	Amount allotted (in lakhs)	Amount disbursed (in lakhs)	
Balasore	13,821	18,289	52,325	84,435	1372.765	1,343.35	1,242.160	93.00
Bhadrak	86	36,662	116,403	153,151	1900.28	1,610.560	1,769.090	93.10
Cuttack	0	123,985	169,138	293,123	4,171.08	4,285.30	4,101.000	98.32
Dhenkanal	0	4,861	90,481	95,342	1,001.4	1,007.63	973.400	97.20
Jagatsinghpur	12,693	213,952	51,233	277,878	5235.625	5,270.60	4,785.200	91.40
Jajpur	97	51,694	205,528	257,319	3092.555	3,092.82	3,092.550	100.00
Kendrapara	451	151,398	156,884	308,733	4,470.98	4,470.98	4,325.960	96.76
Keonjhar	69	7,205	44,684	51,958	593.35	586.63	577.859	97.39
Khurda	0	16,090	149,041	165,131	1,812.21	1,807.35	1,753.640	96.77
Mayurbhanj	262	3,645	8,747	12,654	144.57	187.11	144.282	99.80
Nayagarh	0	73	14,088	14,161	142.34	200.00	128.690	90.41
Puri	0	55,907	68,108	124,015	1,931.02	1,995.18	1,799.220	93.17
Ganjam	0	14,137	212,985	227,122	2,500	1,555.91	2,366.500	94.66
Gajapati	0	0	596	596	5.96	15.00	5.950	99.83
Total	27,479	697,898	1,340,241	2,065,618	28,374.135	27,428.42	27,065.501	95.39

Source: Government of Orissa (2000), 'White Paper on Super-Cyclone in Orissa, Revenue Department, June.

the Disaster and Emergency Committee (DEC)² Agencies] in relief and rehabilitation measures was praiseworthy. 'Mamta Gruhas' (Box 7.1) as rehabilitation centres for women and destitutes were innovative interventions.

Aid from various sources that poured in after the cyclone/flood to the Government of Orissa till 30 June 2000 was Rs 828.15 crore from the Government of India under NCFR and Rs 826.01 crore from various departments. of the Central government, Rs 45 crore from PMRF, and Rs 36 crore from various states (Table 7.11).

According to a study (Samal, Meher and Panigrahi 2003) on impact and effects of the Super Cyclone of 1999 in three most cyclone-affected districts of Jagatsinghpur, Kendrapara, and Puri, the cyclone has changed occupations of people in most sample villages. The significant decline in livestock population, plants/orchards, and trees has adversely affected livelihoods of households dependent on these resources for their traditional incomes. Around half of the total humans lost were earning members.

The impact of the Super Cyclone was more disastrous on Dalit, landless poor, other vulnerable groups like women, aged persons, children, and on those households which lost all adult male members of their families. In the first instance, help to the cyclone-affected persons came from their relatives in most of the cases. It is the state government who first reached the cyclone-affected persons in providing relief in the form of airdropping of food materials and then distributing relief in Block and Panchayat offices. Around one-fourth of the total relief distributed by the government went to the severely affected Jagatsinghpur district, and especially its Ersama block.

The state government provided a number of rehabilitation supports to the cyclone-affected households, such as ex-gratia payment for human deaths, financial assistance for damaged houses, financial help for fishing equipment, betel vines, loss of other income-generating assets, subsidised seeds for cultivation, PDS rice at concessional rate, waiving of school/college fees, compensation for crop insurance, house building materials, utensils, FFW programmes and others. Despite some inefficiency

Box 7.1

Mamta Gruhas: A Plan for Rehabilitation of the Homeless

The destruction caused by the 1999 Super Cyclone left behind a number of orphans and widows in Ersama block with none to take care of them. In order to rehabilitate these orphaned and vulnerable children, widows, and destitute, community homes, popularly known as '*Mamta Gruhas*', were set up in villages where there was a large concentration of such people who had been orphaned and made destitute. These homes, initially set up by the government, were brought under the overall responsibility and management of Action Aid, which has taken up the issue of long-term rehabilitation of the inmates of the *Mamta Gruhas*. The objective of the *Mamta Gruhas* were: (i) to ensure that

basic needs for the survival of the target groups were met, (ii) to meet their psycho-social and security needs, and (iii) to facilitate a process where the target groups could be rehabilitated into the community. For long-term rehabilitation of the inmates, formation of foster homes has been taken up in consultation with UNICEF. Widows, with or without children, are being asked to consider forming families by adopting orphans or even going for remarriage. 44 *Mamta Gruhas*, which were established in December 1999 and supported by Action Aid, provided shelter to 801 orphans and children at risk, 638 widows, and 201 old people.

Source: (i) Kishor C. Samal (2003), 'Coping Strategy of Weaker Sections (Dalit and Women) in Post Super Cyclone Orissa (Case Study of Ersama Block)', mimeo, (A Report of the Research Project Funded by ICSSR, New Delhi), NCDS, Bhubaneswar; and (ii) United Nations Development Programme.

² Consortium of 11 INGOs.



Table 7.11

Aid from Various Sources after 1999 Cyclone and Flood (up to 30 June 2000)

Source	Amount (Rs crore)
1. Government of India (NFCR)	828.15
2. Government of India (various departments)	826.01
(a) Indira Awas Yojana (50,000)	47.97
(b) Food for Work	39.37
(c) 3880 Operation Blackboard School	34.92
(d) Rabi crop loan	118.38
(e) Rehabilitation of cyclone affected industrial units	20.00
(f) PDS Rice at BPL Price	329.51
3. Prime Minister's Relief Fund	
(a) Ex-gratia	38.10
(b) Books for students	6.95
4. Aid from various states	36.00

Source: Government of Orissa (2000), 'White Paper on Super-Cyclone in Orissa, Revenue Department, June.

in managing relief and rehabilitation measures, the State government did a job with regard to: (i) controlling the spread of any epidemic after many deaths of human beings and bovine population, and (ii) not having any starvation death in the cyclone-affected areas.

7.2 Disaster Management in Orissa

A number of initiatives have been taken by the state through planned interventions to combat natural disasters. During the First Five-Year Plan, river valley projects were initiated and Flood Control Boards constituted for major river basins like Mahanadi and Brahmani to counter flood hazards. To mitigate the impact of drought, the Drought Prone Area Programme (DPAP) was introduced in the early 1970s. In the cyclone prone areas, Early Warning System (EWS), cyclone shelters, and other protective measures have been introduced, particularly after the devastation of the 1999 Super Cyclone in the state. A brief description of initiatives is given below.

7.2.1 Drought

Famine codes framed and amended by successive Famine Commissions (1880, 1898, 1899) provided for taking measures when there was apprehension of large-scale human mortality, and aimed at preventing deaths on account of calamities. After independence, the word 'famine' was replaced by the word scarcity and the famine relief codes of the erstwhile provinces (including Orissa) were replaced by the scarcity relief manuals, which described scarcity as a marked deterioration of the agricultural season due to failure of rains or floods or damage of crops from insects resulting in severe unemployment and consequent distress among agricultural labourers and small cultivators (Prakash 1994).

Some of these programmes were implemented in the state during the 1980s, as Orissa faced drought disasters throughout the 1980s. These programmes included the Food For Work (FFW) programme, National Rural Employment Programme (NREP), Integrated Rural Development Programme (IRDP), and the Rural Landless Employment Guarantee Programme (RLEGP). In the 1990s, the frequency of drought declined, but a major drought occurred in 1996. The drought of 1996 focused attention on the need for employment assurance, and as a result, the Employment Assurance Scheme (EAS) was introduced.

Some of these programmes were, however, ad-hoc in nature and did not have a long-term perspective. Long-term measures included DPAP that did not have much success mostly due to lack of an integrated approach. The watershed development approach, based on community participation, appears to be an appropriate approach to tackle droughts.

According to one view (Pradhan 2003), the annual rainfall has no relation to drought. The annual rainfall may be more than adequate but if it is not equally distributed during different seasons, there is every possibility of crop failure. In Orissa, since more than two-thirds of the cultivable land is utilised for paddy, drought usually refers to failure of paddy



crop. Several types of traditional paddy varieties were cultivated in the state in the past. Some of them had better climatic and regional adaptability and reduced risk of crop failures. However, varieties of paddy have considerably got reduced in recent times. High-yielding and high input varieties, usually, have risk of crop failures.

Some risk reducing approach should be as follows:

- To face drought/flood, a single method cannot be used for all areas. Thus crop diversification (as per rainfall, and soil) and conservation of biodiversity needs encouragement.
- In the western part of Orissa, plantation, particularly fruit-bearing trees (for example, mango and jackfruit), will help during drought, since people can sell the yield for livelihood.

7.2.2 Flood Mitigation

Flood mitigation measures can be done in three stages: (i) Pre-flood stage, suggesting preventive techniques; (ii) Action Plan, when the flood has struck a particular area; and (iii) Post-flood management stage, suggesting measures to reduce the suffering of the people affected. While taking preventive measures during flood, it is important to make a distinction between those who live near banks of rivers without embankment and those behind embankments of rivers. The inadequacy of action at the first stage accumulates pressure at the last stage. This brings the increasing problem of rehabilitation, the cost of which in many cases becomes as much as the cost of structural measures required to assure reasonable safety (Aich 1999).

As early as 1928, a Committee was set up to study the flood problem in Orissa, which was followed by the Flood Advisory Committee (1938–39). The 1928 Committee considered the problem as disposal of excess floodwater and the 1938–39 Committee viewed the problem as one of proper distribution and disposal of excess rainwater. The Committee broadly recommended a system of embankments to control flood. M. Visveswaraya, Chief Engineer of

Hirakud Dam, visited Orissa delta during 1939 at the initiative of the Government of Orissa and estimated that a quarter of the delta water should be normally diverted to necessary waterway. The Hirakud Dam was constructed in 1957 primarily to control flood. After the Srinagar conference of Irrigation Ministers, the Government of India made a plan to build two multi-purpose dams in Orissa with a total expenditure of Rs 45 crore for Rengali (on Brahmani river) and Bhimakund (on Baitarani river) projects. While construction of Rengali Dam was started in 1973 and completed in June 1985 to impound 2.47 million acre-feet of water, the Bhimakund project was cancelled (Sahu 2000).

Increased run-off from the upstream catchment following deforestation seems to have rendered inadequate the original live storage capacity of Hirakud Dam, which was designed on the basis of past trends in the run-off from the upstream catchment (Satapathy 1993). Added to this is the problem of siltation, which has threatened to reduce the original capacity of live storage of the reservoir. Such a higher rate of siltation than anticipated in the original project on the basis of actual silt survey is indicative of increased soil erosion in the upstream catchment.

The Mahanadi delta region has been transformed over the 150 year (1803–1928) period from a flood dependent agrarian region to a flood vulnerable landscape—a transformation affected by British colonial rule that not only instituted a new regime of property rights but also the deployment of numerous technical interventions. Over the period, there was a movement from embankments to a canal system and finally the construction of the Hirakud Dam on the Mahanadi River (D'Souza 2000). Satapathy (1993) argues that the Hirakud Dam has drastically reduced large floods in the state. On the other hand, increased frequency of medium and small floods was seen as a joint result of flood moderation by the Hirakud reservoir and the contribution from the downstream catchment. It can be pointed out that the large flood



of 1982 was not due to the Hirakud Dam but due to the downstream catchment. Therefore, there is increasing importance of run-off characteristics of the downstream catchment. Increased run-off from downstream seems to have been due to deforestation taking place in this catchment area. This could be crucial in perpetuating the occurrence of medium/small floods as well as in producing a very large flood in case of abnormally high rainfall in the downstream catchment, as had happened in 1982. This shows the importance of afforestation and soil conservation measures in the downstream catchment, since such measures are particularly effective for checking small/medium floods whose frequency has increased in the post-dam period (Satapathy 1993).

A post-disaster system management includes warning system, emergency operation, evacuation, relief and rehabilitation, health measures, repair and reconstruction of infrastructure facilities. Since floods are frequent in the state, disaster management proves to be quite an expensive affair for the concerned bodies. Though it is the government's prime responsibility to rehabilitate victims of flood, public contribution in large measure should aid government efforts. Voluntary organisations having long experience in providing relief and rehabilitation should be invited to work for the purpose.

One of the crucial factors in rehabilitation is to keep in mind the post-traumatic psychological affect on the victims. It is not uncommon for the affected people to be gripped by hopelessness and a pathetic state of mind following a flood. If such an attitude is allowed to persist, chances are that it might make the victims over-dependent on welfare services and make them a permanent burden on the state (Basu 1999).

A major problem of post-disaster management is the lack of community involvement. It is the people in the affected area who can help immediately, more than outside agencies. Therefore, their involvement is necessary for timely and better management. They

can also be involved in the pre-flood management (preparedness) planning. It may be recalled that the Eleventh Schedule to the Indian Constitution has specified that as many as 29 items will be handed over to the Panchayati Raj Institutions (PRIs). But surprisingly, natural calamities do not figure on this list. It follows that states that are prone to disaster should make sufficient provision to transfer the management of natural calamities to PRIs since local action can be easily mobilised within a short time (Reddy, Thapliyal and Sastry 2000).

7.2.3 Cyclones

Planning for cyclone disaster management should be done in three stages: pre-cyclone, during cyclone, and post-cyclone. Lack of preparedness and proper planning in the 1997 and 1999 cyclones in Orissa resulted in large-scale loss and damage. Further, in the earlier cyclones, the government and NGOs undertook management of disasters, and there was no participation from people. Since the people in villages are the ones affected, their involvement in the management at all three stages is crucial. This is also because they are available immediately and can be easily utilised for relief services. Box 7.2 highlights some efforts made in Orissa to encourage volunteerism and sustainable development.

Community effort is indispensable as far as disaster management is concerned. The government alone cannot cope with the disaster of a magnitude of the 1999 SuperCyclone. The widest possible mobilisation of various groups, organisations, and institutions, including local, national, and international bodies, should be initiated in a coordinated manner. It is desirable that all long-term measures be integrated under one unified plan in full consultation with local communities. Samal (2003) found that the affected people were able to save their lives during the Super Cyclone by adopting various coping strategies. For food, they depended mostly on green coconut, papaya (*amrutabhand*), and banana to save them from starvation. Those who were in cyclone shelters had to rely on dry food, particularly pressed rice

Volunteerism and Sustainable Development in Orissa

The International Year of Volunteers 2001 resulted in consensus in the United Nations General Assembly (resolution A/RES/56/38) that governments and the UN system should take measures to incorporate volunteerism into their strategies and programmes, including in the field of sustainable development. The United Nations Volunteers (UNV) programme is the United Nations organisation that supports sustainable human development globally through the promotion of volunteerism, including the mobilisation of volunteers. In 2001, there were more than 5000 UN Volunteers, representing 160 nationalities.

In Orissa, the need, role, and contributions of the volunteers gained momentum in the process of relief, recovery, and disaster preparedness and management after the October 1999 super cyclone and subsequent floods and droughts in 2000–02. Scores of volunteers from the government-run Nehru Yuva Kendra Sangathan (NYKS), United Nations Development Programme (UNDP), Red Cross and several other donors, non-governmental organizations (NGOs) and community-based organizations (CBOs) have shown

exemplary contributions and performance in the process of post-disaster response, rescue, recovery, and development. United Nations Volunteers (UNV), Red Cross volunteers and other CBOs have helped the community in disaster preparedness and response.

The volunteers have helped the community to prepare their own disaster preparedness and response plans and also in training the taskforce members on various rescue and evacuation techniques, early warning (Ham radio training), and first aid. Women volunteers too have taken an active role in this process of vulnerability reduction and sustainable development. The 'Mission Shakti' Programme of the Government is a step towards women being made more self-reliant. The *Meena groups* in some of the villages of Orissa have worked for the rights of adolescent girl child. These groups too have been trained on early warning, rescue, and first aid and have been picked up as an essential vehicle in the context of vulnerability reduction and sustainable development in Orissa.

Source: United Nations Development Programme, Bhubaneswar.

(*chuda*) and puffed rice (*mudhi*). Many could save their lives from high tide by catching hold of bamboo bushes, *kewada* bushes, cashew plants, and staying on sand dunes. Thus, from these natural and spontaneous coping strategies of the people during the Super Cyclone, one can learn that it is advisable to have, besides mangrove forest, coconut trees, papaya and banana plants, bamboo, *kewada* and cashew plantation. The community should also see that sand dunes are maintained.

Volunteers: Local and External

Past experience shows that the following two generalisations or assumptions can be arrived at (Dharmaraj 1996):

- Locally available untrained volunteers contribute significantly to rescue, relief, and local priorities, provided they are motivated. In view of the availability of local voluntary force, it needs to

be recognised, organised, and its effectiveness increased through training.

- Outsiders who immediately come forward from nearby areas as sympathisers do provide relief, rescue, search, and retrieval operations. Soon after, they become more a source of concern than help, because they too utilise the scarce resources available at the field level besides causing inconvenience like overcrowding, spreading rumours, and infections.

Viewed against this background, there is a greater need for local mobilisation and organisation. It must be emphasised that organisation of people, groups, and the community should be undertaken as a regular measure. If organised properly, local communities can work through Gram Panchayats and other local institutions more systematically, contribute more significantly with minimum risk.



On the other hand, mobilisation is a post-disaster occurrence, and is generally attended to by people coming from outside the community. But both mobilisation and organisation need to be integrated for effective management of natural disasters (Reddy, Thapliyal and Sastry 2000; Gupta 2000). The effective role of Gram Panchayats must be recognised by the government in any relief or rehabilitation measures it undertakes.

Village Contingency Plans

For the success of disaster management like cyclone, village level contingency planning is necessary. A village contingency plan is a list of activities a village agrees to follow to prevent loss of life, livelihood, and property in case a cyclone (or flood) strikes. It also identifies, in advance, action to be taken by individuals in the community so that each one knows what to do when a cyclone warning is received (Oxfam 2000).

The village level contingency planning, however, will differ from village to village depending on their locations, resources, inhabitants, and their ways of making community decisions. Contingency planning should be made for each and every village affected by cyclone. The village contingency planning has five stages:

- Review and analysis of last cyclone/natural disaster,
- Situation analysis of the village,
- Hazard mapping (showing what causes damage in a cyclone and where),
- Risk mapping (identifying vulnerable people and areas), and
- Opportunity mapping, showing how to reduce risk.

Since a village contingency plan has to be made by the inhabitants of the village itself, every segment of the village has to be represented during the meeting to express their needs and concerns and share their experiences. To carry forward the process of discussions and to guide the community towards drawing a workable plan, the involvement of

NGO volunteers, community leaders, Tahasildar, Block Development Officer (BDO), village level worker (VLW), and other elected representatives like Sarpanch, Panchayat Samiti (PS) chairman, and co-operative society members, is necessary. They possess necessary authority and skills to motivate the community, conduct these sessions, and make sure that decisions are arrived at through participatory discussions.

The problem of disaster management will be dealt with to a large extent if long-term measures are taken to control the natural disaster, particularly those that occur suddenly (for example, flood and cyclone). Creation of sand dunes, mangrove forest, and sluice gates are more appropriate long-term measures for dealing with cyclone, as are dams and check dams for floods.

Having *pucca* houses in the areas prone to sudden natural disasters (especially flood and cyclone) will solve a major problem at the individual level. Short-term palliatives in the form of relief and reconstruction measures create a dependency syndrome among the affected people.

7.2.4 Orissa Relief Code

The Orissa Relief Code (ORC) is a comprehensive document which acts as a guideline for undertaking preparatory measures prior to the occurrence of the natural calamities and relief measures soon after their occurrence. Prior to the formation of the Orissa Relief Code, the Bihar and Orissa Famine Code (with revision from time to time) formed the longstanding guiding principle in mitigating natural calamities. The provisions of this code became obsolete in the post-independence era due to a radical change in the concept of relief from just saving lives to providing both preventive and curative relief. For the first time after the catastrophic cyclone of 1971, the government decided to frame a fresh Relief Code and the Orissa Relief Code, 1980 came into existence. After 1980, a number of instructions have been issued by the state government to enlarge the

scope and content of the code in order to make it more relevant to the times.

The objective of relief measures is not only to ensure that no one dies of starvation but also to prevent physical deterioration and destitution of the people and to enable them to resume their normal lives as soon as possible. The general principle regulating relief measures is that relief operations should not be viewed in isolation. They should be very much an integral part of the rural welfare and development.

A number of long-term relief measures are suggested to help communities cope with the aftermath of natural calamities. These relief measures are undertaken subject to the directive of the Board of Revenue/Special Relief Commissioner and the scales of relief are given as per modifications to be effected by government from time to time.

These relief measures include:

- labour-intensive works including relief works,
- gratuitous relief,
- nutrition supplementary feeding programme,
- relief measures by NGOs,
- case of orphans and destitutes,
- strengthening of PDS,
- health measures and veterinary measures,
- agricultural measures including provision of credit supply,
- special relief to weavers and artisans,
- arrangement of food stuff and stocking of foodgrains at strategic places,
- provision of safe drinking water,
- provision of immediate irrigation facilities,
- remission and suspension of collection of land revenue and loans,
- grant of educational concessions,
- enquiry into starvation cases and prompt action taken on such reports, and
- action on press reports.

The ORC has specified assessment procedures for crop loss, starvation deaths, human casualties, loss

of livestock and other damage caused by drought, cyclone, tidal waves and flood, to gauge the severity of disaster and has specified some norms for distribution of relief and rehabilitation measures. Besides, it has specified the community preparedness programmes and long-term measures to lessen disastrous impacts of calamity and to afford necessary emergency protection.

The ORC has specifically mentioned that the Collector is responsible for relief operations in the district and for coordination among different departments. The Collectors and Revenue Divisional Commissioners (RDCs) have the power to requisition the services of gazetted and non-gazetted officers working in the areas affected by the natural calamities for administration of urgent relief measures (Appendix I-D of ORC). In case the number of officers in a district affected by a natural calamity is found to be inadequate, officers from other districts can be requisitioned. It is also specified in the ORC that block is the unit of relief organisation and BDO shall be in charge of the unit. The officer-in-charge of the Relief Circles should see that the people's representatives are properly associated with all relief measures.

7.2.5 Draft on Disaster Management Policy

The Super Cyclone of 1999 has led to a realisation of the need to follow a radically different approach to confront and manage disasters. The necessity to shift the focus from 'relief, restoration and rehabilitation' to 'planning, prevention and preparedness' was felt at all levels. It was also recognised that the communities will have to be the prime stakeholders in the overall disaster management process. The state government, therefore, felt it necessary to have a specific policy for disaster management that would provide necessary guidelines on all aspects of emergency management. It is proposed, therefore, to change the focus of disaster management policy to total risk management and vulnerability reduction, to strengthen physical infrastructure and biophysical, psychological, social, and economic status of the people to reduce vulnerability (Government of



Orissa 2003). The principles of disaster management enumerated in the policy document are presented in Box 7.3.

The Policy document proposes that disaster management will have an integrated approach covering three phases of disaster preparedness, viz. pre-disaster phase, response phase, and recovery and rehabilitation phase. It also prescribes that coordinated effort of all stakeholders would be required for effective disaster management. The policy document makes the Revenue Department the nodal department for disaster management, where the Orissa State Disaster Mitigation Authority (OSDMA) will play a coordinating role in the pre-disaster and post-disaster phases, and the Special Relief Organisation will play the lead role during the response phase. The OSDMA will assist the Special Relief Organisation during the response phase and also point out to the Special Relief Commissioner (SRC) and the Collectors the gaps in the relief administration, if any. The other stakeholders will play their assigned roles during any or all the three phases. The state government would also designate specific departments to be the nodal departments in respect of specific disasters. The District Collector will be the nodal person for prevention, response, and recovery in the event of all types of disasters occurring within the district.

7.2.6 Role of OSDMA in Disaster Management

Orissa, which is vulnerable to various kinds of disasters, needed an institution for improving the quality of disaster management in the state. Many developed and developing countries of the world have counterpart institutions, which are different from response organisations. Bangladesh set up the Disaster Management Bureau after the 1991 cyclone, in which more than one lakh people perished. The Disaster Management Bureau has been playing a proactive role ever since to improve disaster preparedness in the country. Emergency Management Australia (EMA) in Australia and Federal Management Agency (FEMA) in USA are well known for their work in the

field of emergency management (OSDMA 2003). The magnitude and intensity of a disaster like the Super Cyclone of October 1999 provided the impetus for the creation of this organisation, which was set up on 28 December 1999 as the first disaster management authority in the country. Its headquarter is located at Bhubaneswar and currently the Department of Revenue is its administrative department. The main objectives of OSDMA are:

- To act as the nodal agency for disaster reconstruction works;
- To coordinate with the line departments involved in reconstruction;
- To coordinate with bilateral and multi-lateral aid agencies;
- To coordinate with UN Agencies, international, national, and state-level NGOs;
- To promote disaster preparedness at all levels in the state; and
- To network with similar and relevant organisations for disaster management (OSDMA 2001–02).

There is, however, a division of work between the Special Relief Organisation and OSDMA. The former is entrusted with the responsibility of coordinating immediate response and relief in the aftermath of disaster, mostly natural disasters. The emphasis of the Special Relief Organisation is on immediate relief, payment of compensation, and other related responsibilities. OSDMA, on the other hand, has set itself different tasks: promotion of long-term preparedness, adoption of mitigation and long-term recovery and reconstruction measures. It is designed to handle externally aided project for disaster construction and recovery. It has the responsibility to build the disaster management capacity of institutions within the government, local self-government bodies, NGOs, and the community (OSDMA 2003).

The Disaster Risk Management Programme has been undertaken in 145 blocks spread over 16 districts in coastal Orissa. Preparation of disaster preparedness plans at village, gram panchayat, block, and district



The Principles of Disaster Management

- Take a proactive approach to disaster management and promote a culture of prevention and preparedness among individuals and institutions.
- Follow a multi-hazard approach to disaster management.
- Shift from a relief and welfare approach to a right and entitlement-based approach to humanitarian assistance.
- Since sustainable development will not be possible without active involvement of communities, make the vulnerability reduction programmes community driven.
- Integrate disaster management into development policy and planning.
- Institutionalise efficient, well-coordinated, and participatory disaster management initiatives as one of the basic ingredients of good governance.
- Ensure quality at all stages of emergency management, including prevention, mitigation, relief, and reconstruction and make their adoption mandatory. For doing so, universally accepted minimum standards will be adopted. If necessary, the standards would be modified taking into account local conditions and customs.
- Attempt harmonious blending of all disaster management interventions with local cultural ethos.
- Focus on protection of the environment.
- Promote inter-agency coordination and cooperation for disaster management.
- Involve all stakeholders in disaster management and define their roles in different stages of disasters.
- Create an enabling environment for ensuring higher participation of all stakeholders.
- Work on legislation(s) to provide statutory backing to essential disaster management functions and agencies.
- Establish a trigger mechanism for emergency operations.
- View people as valuable partners and strengthen community-based coping mechanisms for dealing with disasters.
- Promote a spirit of volunteerism, develop a cadre of well-trained volunteers whose services will be utilised during emergencies.
- Document and use people's indigenous knowledge, whenever possible.
- Share information and knowledge about disasters and their management with all stakeholders.
- Develop a network amongst various disaster management entities using the Orissa State Disaster Mitigation Authority (OSDMA) as the main hub.
- Establish an Institute dedicated to conducting research, development, and training on disaster management related activities.
- Make disaster management a part of the educational system and curricula.
- Decentralise management of disasters to the Block, Gram Panchayat/Municipality levels, and strengthen their institutional and functional capacities to be effective as the first responders to disaster events.
- Ensure that humanitarian assistance is provided in an equitable, consistent, and predictable manner.
- Emphasise participation of women in all stages of disaster management and recognise their special problems in disaster situation.
- Recognise the higher vulnerability of children, elders, and the physically and mentally challenged, during and after emergencies and design interventions accordingly.

Source: Orissa State Disaster Mitigation Authority.



levels with active participation of the people and PRIs has been undertaken under this programme. The aim is to mobilise and motivate people at the grassroot level and stakeholders and disaster managers at the district level to face natural disasters in a more effective manner.

OSDMA is setting up a very high frequency (VHF) network in the entire state, linking 401 locations covering all blocks, all district headquarters, and all major tehasils and disaster prone gram panchayats of the coastal area. Besides these, 22 satellite phones have been procured and deployed at strategic locations to maintain communication network in the event of failure of all other systems during a natural hazard.

There is also a programme for construction of 102 multipurpose cyclone shelters at strategic locations within a 10 km zone of the coastline to provide shelter to the local people during a cyclone. Out of these, 67 have been constructed and 35 are under different stages of construction. A number of primary and high schools in this area have also been constructed and strengthened to be utilised as cyclone and flood shelters.

During 2000–01, OSDMA's major preoccupation was coordinating and facilitating construction activities in the cyclone affected districts. It has also started a disaster preparedness initiative since 2000–01. It has launched a pilot project on Community Based Disaster Preparedness in ten blocks in collaboration with UNDP. The major activity undertaken by this programme by March 2002 was volunteers' training, village contingency plan, community contingency fund, mock drills, gram panchayat disaster management plan, training for PRIs, and block disaster management plan. Improvement of district control rooms has been undertaken with the help of UNDP. OSDMA has also prepared a state disaster management plan and has taken steps to strengthen collaboration between government and civil society and communication network. Now

OSDMA is developing district-wise GIS database in collaboration with the Orissa Remote Sensing Application Centre, Bhubaneswar.

OSDMA has also played a modest supporting role in response to the floods in 2001. It prepared regular updates on the situation with the help of flood control cells and satellite pictures. It disseminated information among key government departments and civil society organisations, established communication links with vulnerable areas through satellite phone/VHF/Ham Radio, and hosted information on its website. Besides this, daily coordination meetings with UN agencies and NGOs were held, and volunteers were mobilised for evacuation, search, and rescue operation. Some 457 volunteers, including 46 from the UN, worked at the block level distributing relief materials. OSDMA coordinated the effort at the state level. Due to the active role of OSDMA, the loss of human life could be reduced to just 122 though nearly 97 lakh people in 18,790 villages and 68 urban local bodies in 24 districts were affected. Increasing role of PRIs and civil society organisations in disaster management has been underscored in Boxes 7.4 and 7.5.

OSDMA has, therefore, made a good beginning in disaster mitigation in the state. But its activities have mostly been concentrated in the cyclone affected districts, ostensibly due to a felt need after the widespread destruction caused by the Super Cyclone of 1999. However, the mandate of OSDMA is to undertake disaster mitigation and preparedness measures throughout the state. Disaster does not mean cyclone or flood alone. Slow disasters like drought, and other natural calamities like earthquake, and fire have also to be included in the disaster management activities by the OSDMA.

7.2.7 Role of ODMM

The birth of Orissa Disaster Mitigation Mission (ODMM), a collaborative initiative of various state-level NGOs, was an outcome prompted and necessitated by the unprecedented emergency that the state faced following the 1999 Super Cyclone.

Role of PRIs in Disaster Management

Panchayati Raj Institutions have assumed an important role in the field of disaster management, especially after the Super Cyclone of 1999. Their contribution has been significant in the field of awareness at community level, wider warning dissemination, storage and distribution of relief materials, and coordination with government and civil society organisations. They have played a crucial role during damage assessment and payment of compensation, mobilisation of local resources and volunteers, construction of gram panchayat (GP) level and block level storage godowns, management of cyclone shelters, reconstruction and rehabilitation activities,

and construction of disaster-proof developmental projects. They also have been actively involved in the process of orientation of different stakeholders and preparation of multi-hazard disaster management plans at village, gram panchayat, and block levels under the GoI–UNDP Disaster Risk Management Programme. Under the programme, Disaster Management Committees have been constituted at village, gram panchayat, and block levels under the chairmanship of ward member, sarpanch, and panchayat samiti chairpersons respectively for better planning, preparedness, and response activities.

Source: Orissa State Disaster Mitigation Authority, Government of Orissa, Bhubaneswar.

The ODMM launched relief operation with a futuristic approach and restoration in mind.

The ODMM's support during the Super Cyclone was in the following areas:

- Health care,
- Counselling,
- Carcass disposal,
- Shelter relief,
- Community-based rehabilitation of orphans and destitute women,
- Agricultural support,
- Plantation and nursery,
- Livelihood restoration,
- Social–legal information centres, and
- Crèches and day care centres.

Around Rs 37.54 lakh was spent by ODMM as financial support for these activities (ODMM 2001).

7.3 Impact on the Poor and Preparedness

During the decade 1992–2001, losses stemming from natural disasters worldwide have averaged around US\$ 65 billion a year. Ninety-four per cent of the world's major disasters during 1990–98 were in developing countries, according to the World Bank's *World Development Report 2000–01*. But

developing countries have made lesser efforts than the developed countries to adapt their physical environments to mitigate the impact of natural disasters or to insure themselves against disaster risk. Twenty-four of the 49 poorest countries face a high level of disaster risk. In developing countries, the poor are more likely to suffer than the rich due to various factors, such as:

- They often live in areas that are especially vulnerable to natural disasters e.g., seashore, river banks.
- Disasters can severely depress the food production of the rural poor.
- The poor may be forced to sell their real assets since their savings are likely to be inadequate to face the destructive impact of large-scale natural disaster.
- The poor are less likely to have access to risk-sharing mechanisms like insurance (Freeman, Keen and Mani, 2003).

To some extent, countries can prepare themselves for natural disaster by adapting to their physical environment and their economies (such as land-use planning to avoid construction on seismic fault lines, in the vulnerable coastal region and on river shorelines, farming practices that enable farmers to



Role of Civil Society Organisations in Disaster Management

In the aftermath of Super Cyclone 1999, the response of the civil society organisations in terms of emergency relief in rehabilitation support was overwhelming. A number of INGOs, and many small and big local NGOs participated in the response activities. The fields in which they provided assistance included rescue and relief such as food aid, immediate habitat restoration, health and sanitation, and temporary shelter. Again, going beyond the conventional practice of charity based approach and doling out emergency relief, many of them involved themselves with the complex long-term process of rescue, relief, rehabilitation, and reconstruction to ensure restoration of normal life. Apart from assisting the people in different spheres, they instilled cooperative and participative spirit among the affected people so as to enable them to rebuild their life. OSDMA has been coordinating the activities of UN Agencies, INGOs, and NGOs at the state level. Similarly, Collectors and BDOs are coordinating the NGO efforts at the District and Block levels respectively. Regular coordination has been going on with them to rule out duplication or overlapping of efforts and to ensure optimal and equitable utilisation of resources.

A list of major activities undertaken by the civil society organisations is indicated below:

- Assistance in shape of food and shelter materials.
 - Assistance for equitable distribution of relief.
 - Organisation of community kitchens with own resources and government support.
 - Organisation of medical camps and deployment of medical teams.
 - Livelihood support.
 - Provision of family survival kits.
 - Constitution of coordination cell at block and district level for better coordination among themselves and interfaced with government agencies.
 - Capacity building of stakeholders.
 - Collaborative programmes with government agencies.
 - Awareness generation activities.
 - Preparation and publication of disaster management related information, communication, and education materials, manuals etc.
 - Implementation of community based disaster management plans and programmes.
 - Construction of cyclone shelters/community infrastructures.
- Coordination with stakeholders.
 - Mobilisation of volunteers for warning, execution, search, and rescue operations.

Source: Orissa State Disaster Mitigation Authority, Government of Orissa, Bhubaneswar.

weather climatic variations using drought-resistant crop varieties), and by purchasing insurance.

7.3.1 Insurance

Many developing countries lack financial resources, technical knowledge, and the political will to mitigate physical vulnerability. Mitigation measures can eliminate only some of the risks. Even the best prepared will not be able to avoid all natural disaster-inflicted damage. So, there is a greater need of disaster insurance.

Disaster insurance is not extensive even in developed countries except in USA. Natural disaster insurance is rudimentary in many developing countries, including India, and is largely confined to rich individuals and large enterprises. It is the poor who are hit hardest by disasters, and they normally have no access to any formal insurance mechanisms to protect their limited assets. Private insurance measures in most developing countries are nascent or non-existent and, so the public sector absorbs much of the impact of disasters. Public sector insurance schemes have often failed because of high



administrative costs, inefficient loss calculation, and inadequate premium charges. The important failures in the disaster insurance markets in general are due to: (i) adverse selection, (ii) difficulty of assessing the probability of extreme weather events due to climate changes, and (iii) difficulty of risk spreading. New financial instruments hedging against weather and natural disaster risks such as: (i) catastrophe bonds, (ii) contingent surplus notes, (iii) catastrophes equity puts, (iv) catastrophes swaps, and (v) weather derivatives, are available in the international capital market but have had little impact as yet (Freeman, Keen and Mani 2003).

The governments in developing countries may make insurance compulsory or provide a premium subsidy. In Orissa, though there is talk of crop insurance, insurance of livestock (particularly cows and buffaloes) through a state co-operative, the Orissa State Cooperative Milk Producers Federation (OMFED), and group insurance for fishermen, it is not yet fully operative or effective or related to disaster.

7.3.2 Safer Housing

During the 1999 Super Cyclone, the majority of people killed were living in mud-walled thatched houses in the flat lowland area of Ersama block of Jagatsinghpur district. These houses are more vulnerable to collapse from sudden impact of natural disasters, and hence are instrumental in killing its residents during cyclone and flood (Arya 2003).

7.3.3 Community Participation/Community Contingency Plan

Various types of stakeholders in a disaster are involved in the relief operation, rehabilitation,

and reconstruction process. However, it is the local communities who are the first respondents. Therefore, they should form the core of any disaster preparedness and mitigation effect. The Tenth Five Year Plan document also emphasises the need for community level initiative in managing disasters. Various studies (for example, Sharma et al 2003) have stressed community participation and ownership in managing the risk of natural disasters. The first step in this regard is to motivate local decision makers and policy makers (Okazaki and Shaw 2003).

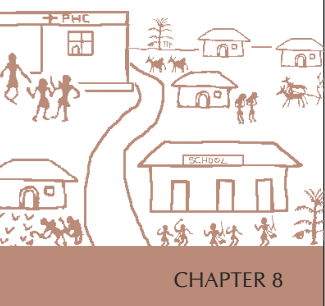
OSDMA and the UNO have made a Community Contingency Plan (CCP) for flood and cyclone in Orissa (OSDMA and UNO, undated). A CCP is a list of activities a village agrees to undertake to prevent loss of life, livelihood, and property in case of cyclone/flood. It also identifies in advance, action to be taken by individuals in the community so that each one knows what to do when a cyclone/flood warning is received. A CCP has to be made by the inhabitants of the village itself. The guidelines give appropriate advice about what is to be done before, during, and after the cyclone/flood. In some areas of Kendrapara district, CCP have been implemented and played an effective role during 2003 flood.

To conclude, it must be stressed that preparedness, relief, reconstruction, and rehabilitation should be under one integrated unified plan with full consultation of local people, and including the functionaries of local level institutions such as gram panchayats. However, a safer house is the first and foremost requirement to face the sudden impact of natural disasters.



CHAPTER 8 **Some Measures of
Human Development
An Inter-district Analysis**





Some Measures of Human Development

An Inter-district Analysis

8.1 Introduction

This chapter considers three measurable indicators of human development - namely, Human Development Index (HDI), Gender Development Index (GDI), and Reproductive Health Index (RHI). While HDI is based on three dimensions of human development that are considered to be fundamental, namely, longevity, knowledge, and a measure of necessary income, GDI brings in an additional dimension, namely gender, which is of fundamental significance in the concept of human development. The RHI focuses on an essential condition of the reproductive health dimension. This gains in significance in light of the fact that, in both HDI and GDI for Orissa, it is the health index which has the lowest relative value (compared to education and income indices). From the gender point of view also, it is necessary to focus on reproductive health – that is recently being emphasised both from the substantive and measurement points of view. In addition, the recent measurement of reproductive health tends to be rather narrowly defined in terms of the childbearing role of women viewed from the perspective of population limitation.

This chapter aims to see the pattern and extent of inter-district variations in respect of each of the three indices and also to examine the degree of correspondence between different indices or that between an overall index and a particular component of that index, at the district level. The information conveyed by three indices of human development throw up certain surprises in the relative levels of development of different districts of the state. Information is also provided on the pattern of inter-district disparities in terms of HDI and GDI as well as the extent of difference between HDI and GDI.

8.2 Human Development Index

The value of HDI for the state as a whole turns out to be 0.579 (Table 8.1). This may be regarded as a somewhat medium level of human development. Of the three components of HDI, the education index has the highest weight (0.723) whereas the health index has the lowest weight (0.468) and the income index (0.545) lies in between (Table 8.1).

Among the top five districts in terms of HDI value (Table 8.5), Jharsuguda (at no. 2) and Sundargarh (at no. 4) are fairly industrialised districts and, therefore, have a very high-income index. They also have a very high health index relative to the state average and an education index close to the state average (Table 8.1). Cuttack (at no. 3), which is regarded as developed according to many economic indicators, has a relatively high education index and health index but an average income index. The appearance of Deogarh (at no. 5) among the top five is somewhat of a surprise and this is mainly due to a very high health index [because of a low infant mortality rate (IMR) of 49 as against an IMR of 102 of its mother district, Sambalpur]. Its income and education indices are close to the state average. Khurda (at no. 1) has all three indices with values well above the state average and the fact that the state capital of Bhubaneswar belongs to this district should be kept in mind.

The lowest five positions are occupied by districts (Table 8.5) that are known to be backward on all counts, three of these districts are from the Kalahandi, Balangir, and Koraput (KBK) region. It is worth noting that the HDI values of these five districts are pulled down particularly by their very low health indices, more than by their income or education indices (Table 8.1).



Table 8.1
HDI for 30 Districts of Orissa

District	IMR (1999)	Health Index	DDP per capita in 1998–99 (in Rs) (at 1993–94 prices)	Income Index	Overall literacy rate (2001)
Angul	95	0.481	10,877	0.748	69.4
Balasore	101	0.442	3,961	0.466	70.94
Bargarh	100	0.449	4,765	0.517	64.13
Bhadrak	65	0.673	3,916	0.463	74.64
Balangir	97	0.468	4,538	0.504	54.93
Boudh	104	0.423	4,436	0.497	58.43
Cuttack	63	0.686	6,116	0.587	76.13
Deogarh	49	0.776	5,022	0.532	60.78
Dhenkanal	97	0.468	5,046	0.534	70.11
Gajapati	143	0.173	5,498	0.558	41.73
Ganjam	107	0.404	5,013	0.532	62.94
Jagatsinghpur	125	0.288	5,340	0.549	79.61
Jajpur	118	0.333	4,468	0.499	72.19
Jharsuguda	71	0.635	11,210	0.757	71.47
Kalahandi	51	0.763	4,043	0.471	46.2
Kandhamal	169	0.006	4,743	0.516	52.95
Kendrapara	77	0.596	3,964	0.466	77.33
Keonjhar	117	0.340	5,286	0.547	59.75
Khurda	57	0.724	7,353	0.639	80.19
Koraput	136	0.218	5,148	0.539	36.2
Malkangiri	151	0.122	4,436	0.497	31.26
Mayurbhanj	48	0.782	4,297	0.489	52.43
Nabarangpur	117	0.340	3,787	0.453	34.26
Nayagarh	98	0.462	4,236	0.485	71.02
Nuapada	62	0.692	4,018	0.470	42.29
Puri	73	0.622	4,933	0.527	78.4
Rayagada	131	0.250	5,300	0.547	35.61
Sambalpur	102	0.436	6,171	0.590	67.01
Sonepur	96	0.474	4,353	0.492	64.07
Sundargarh	62	0.692	6,823	0.618	65.22
Orissa	97	0.468	5,264	0.545	63.61

Table 8.1 contd.

District	Combined Gross Enrolment Ratio (6–14 years) (2003-04)	Overall Literacy Rate Index	Combined Gross Enrolment Ratio (6–14 years) Index	Education Index	HDI Value	HDI Rank
Angul	89.12	0.694	0.891	0.760	0.663	6
Balasore	89.16	0.709	0.892	0.770	0.559	18
Bargarh	89.98	0.641	0.900	0.727	0.565	17
Bhadrak	91.69	0.746	0.917	0.803	0.646	8
Balangir	89.81	0.549	0.898	0.666	0.546	21
Boudh	89.44	0.584	0.894	0.688	0.536	23
Cuttack	91.64	0.761	0.916	0.813	0.695	3
Deogarh	87.84	0.608	0.878	0.698	0.669	5
Dhenkanal	91.64	0.701	0.916	0.773	0.591	12
Gajapati	84.82	0.417	0.848	0.561	0.431	28
Ganjam	89.39	0.629	0.894	0.718	0.551	20
Jagatsinghpur	90.70	0.796	0.907	0.833	0.557	19
Jajpur	91.37	0.722	0.914	0.786	0.540	22
Jharsuguda	89.00	0.715	0.890	0.773	0.722	2
Kalahandi	83.03	0.462	0.830	0.585	0.606	11
Kandhamal	87.68	0.530	0.877	0.645	0.389	29
Kendrapada	89.95	0.773	0.900	0.815	0.626	10
Keonjhar	91.72	0.598	0.917	0.704	0.530	24
Khurda	93.03	0.802	0.930	0.845	0.736	1
Koraput	88.12	0.362	0.881	0.535	0.431	27
Malkangiri	84.73	0.313	0.847	0.491	0.370	30
Mayurbhanj	89.20	0.524	0.892	0.647	0.639	9
Nabarangpur	86.33	0.343	0.863	0.516	0.436	26
Nayagarh	87.77	0.710	0.878	0.766	0.571	15
Nuapada	90.13	0.423	0.901	0.582	0.581	14
Puri	90.02	0.784	0.900	0.823	0.657	7
Rayagada	88.21	0.356	0.882	0.531	0.443	25
Sambalpur	88.71	0.670	0.887	0.742	0.589	13
Sonepur	91.20	0.641	0.912	0.731	0.566	16
Sundargarh	91.49	0.652	0.915	0.740	0.683	4
Orissa	89.58	0.636	0.896	0.723	0.579	

Note: (i) The estimates of infant mortality rate (IMR) for 30 newly created districts of Orissa are indirect estimates built up by the International Institute of Population Sciences (IIPS), Mumbai based on 20–25 years age group by CES–CB method.
(ii) The IMR estimates for the districts of Deogarh, Kalahandi, Nuapada, and Mayurbhanj appear to be very much on the lower side. Hence, the rankings of these four districts based on their HDI values should be regarded as pushed up on that count.
(iii) Even while life expectancy at birth (LEB) estimates for 30 districts were available from the same source as IMR, IMR has been used since IMR for male and female separately for 30 districts could be worked out (required for GDI computation), which was not the case with LEB. However, IMR is an adequate proxy for LEB as the correlation between IMR and LEB is known to be very strong.
(iv) Education Index is a weighted average of overall literacy rate (two-third weight) and combined gross enrolment ratio (one-third weight).
(v) Given the different years to which the individual parameters pertain, the HDI values may be regarded as pertaining to around 2001 (so also the GDI values; see below).

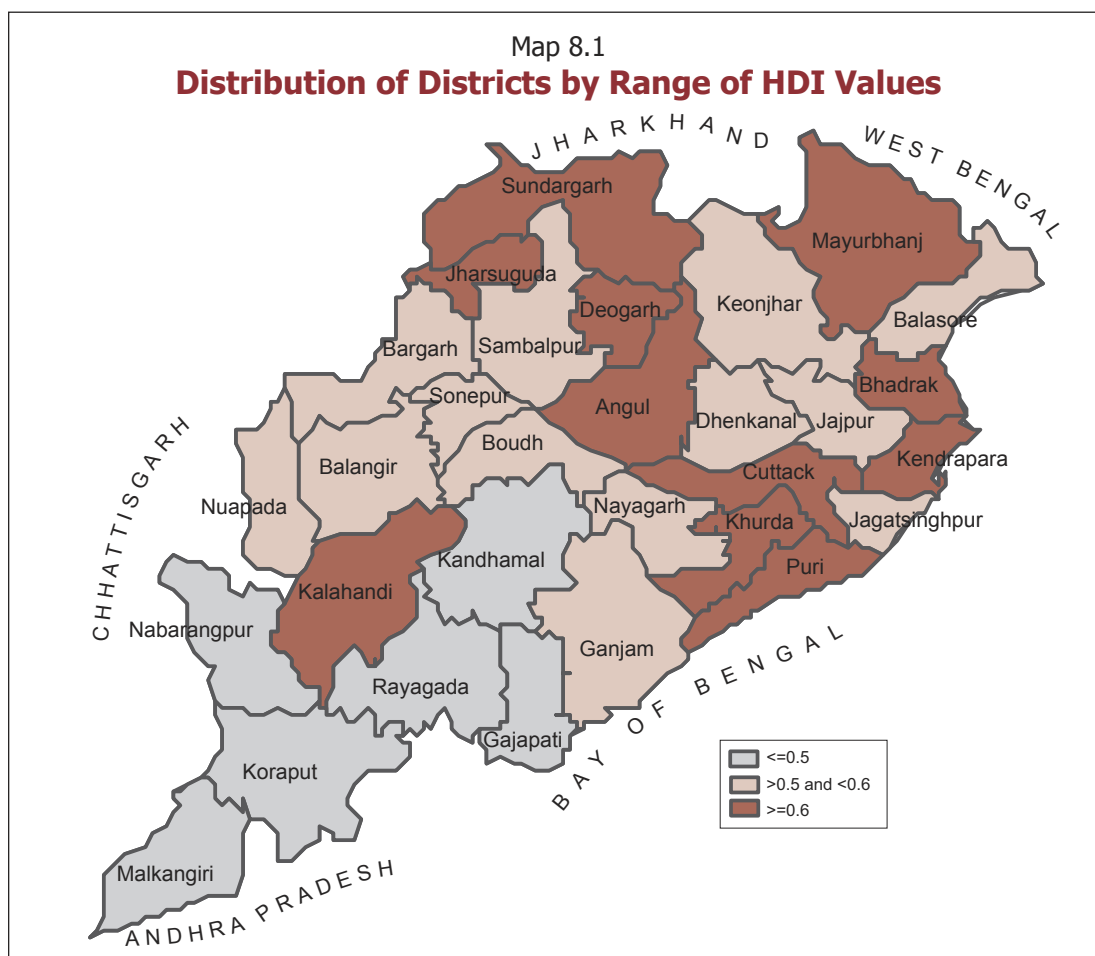
Source: (i) DDP per capita: Government of Orissa (1999), *District Domestic Product of Thirty Districts of Orissa, 1993/94–1998/99 (1993–94 base)*, Summary Results, Directorate of Economics and Statistics, District Income Cell, Bhubaneswar, Orissa. (ii) Overall Literacy Rate: Government of India (2001), *Census of India: Provisional Population Totals, Series-22: Orissa*, Directorate of Census Operations, Orissa. (iii) Combined gross enrolment ratio: Office of the DPEP, Bhubaneswar.



Table 8.2
Distribution of Districts by Range of HDI Values

HDI Value					
Orissa (0.579)					
District	≤0.5	District	>0.5 and <0.6	District	≥0.6
Malkangiri	0.37	Keonjhar	0.53	Kalahandi	0.606
Kandhamal	0.389	Boudh	0.536	Kendrapara	0.626
Gajapati	0.431	Jajpur	0.54	Mayurbhanj	0.639
Koraput	0.431	Balangir	0.546	Bhadrak	0.646
Nabarangpur	0.436	Ganjam	0.551	Puri	0.657
Rayagada	0.443	Jagatsinghpur	0.557	Angul	0.663
		Balasore	0.559	Deogarh	0.669
		Bargarh	0.565	Sundargarh	0.683
		Sonepur	0.566	Cuttack	0.695
		Nayagarh	0.571	Jharsuguda	0.722
		Nuapada	0.581	Khurda	0.736
		Sambalpur	0.589		
		Dhenkanal	0.591		

Source: Based on Table 8.1.



Source: Based on Tables 8.1 and 8.2.

On the whole, inter-district disparity in HDI values is rather low [coefficient of variation (CV): 16.95, Table 8.5]. This is essentially because there is a bunching of 13 districts in terms of their HDI values (lying between 0.5 and 0.6) [Table 8.2 and Map 8.1] around the state mean (0.579).

One of the main purposes of computing HDI is to move beyond the income-based measurement of development. Thus, it becomes important to consider the correspondence (or rather lack of it) between per capita district domestic product (DDP) and the HDI value, in particular, to see the extent to which a high per capita DDP translates into a relatively high HDI value. Comparing the ranking of districts in terms of per capita DDP (Table 8.5), it is found that in the case of 13 districts, relatively lower per capita DDP is associated with relatively higher HDI values. On the other hand, in the case of 12 districts, relatively higher per capita DDP is associated with relatively lower HDI values. [This is suggested by HDI rank minus real per capita income (RPCY) rank in Table 8.5.] Therefore, it is not surprising to find that the correlation coefficient between real per capita DDP and HDI values across 30 districts is only 0.45 (Table 8.5).

8.3 Gender Development Index

While HDI is a simple indicator of basic attainments with respect to human development, GDI uses the same parameters, but aims at capturing the gender dimension of human development. For the method of estimation of GDI, see Annexure II.

The value of GDI for the state as a whole is seen to be 0.546 (Table 8.3). Here, the equally distributed education index has a much greater weight than either the health or income index. Now, since both HDI and GDI are based on the same basic parameters and GDI value is always lesser than the HDI value, it is instructive to compare the HDI-based ranking with GDI-based ranking of different districts (Table 8.5). The highest five and lowest five districts in terms of GDI values mostly correspond to the same in terms of HDI values except that at the higher end, Angul takes the place of Cuttack and at the lower end, Jajpur takes the place of Nabarangpur (Table 8.5). As in the case of HDI, inter-district disparity in GDI values is low (CV: 17.16) and this is again because of bunching of the GDI values of 13 districts (lying between 0.5 and 0.6) around the state mean value of GDI (0.546) [Table 8.4 and Map 8.2].



Table 8.3
GDI for 30 Districts of Orissa

District	Share of population (2001)		Share of population engaged in economic activity (2001)		IMR (1999)		Overall literacy rate (2001)		Combined enrolment ratio (6–14 year)		Estimated earned income	
	M	F	M	F	M	F	M	F	M	F	M	F
Angul	51.51	48.49	67.75	32.25	93	96	82.02	56.01	89.11	89.13	14,864	5,637
Balasore	51.31	48.69	36.28	17.40	77	121	81.75	59.57	89.10	89.24	5,481	2,077
Bargarh	50.61	49.39	65.15	34.85	92	115	77.93	50.03	89.99	89.97	6,600	2,713
Bhadrak	50.68	49.32	86.57	13.43	50	78	85.44	63.62	91.47	91.94	6,556	784
Balangir	50.44	49.56	66.53	33.47	96	98	70.36	39.27	89.45	90.21	6,549	2,515
Boudh	50.38	49.62	61.55	38.45	104	104	76.86	39.78	89.18	89.73	5,640	2,683
Cuttack	51.59	48.41	80.56	19.44	64	62	85.46	66.19	91.69	91.59	9,130	1,761
Deogarh	50.50	49.50	58.57	41.43	45	56	73.79	47.56	87.76	87.92	6,139	3,323
Dhenkanal	50.98	49.02	78.01	21.99	95	98	81.31	58.55	91.54	91.75	8,056	1,771
Gajapati	49.24	50.76	52.47	47.53	155	140	55.14	28.91	84.52	85.17	6,182	4,075
Ganjam	50.00	50.00	62.62	37.38	116	105	78.39	47.7	89.27	89.52	6,641	2,973
Jagatsinghpur	50.97	49.03	82.14	17.86	127	123	88.96	69.94	90.49	90.92	10,141	1,719
Jajpur	50.69	49.31	87.94	12.06	120	116	82.69	61.45	91.29	91.47	7,716	816
Jharsuguda	51.38	48.62	70.66	29.34	65	82	83.04	59.23	89.20	88.79	16,570	5,453
Kalahandi	50.00	50.00	61.47	38.53	54	48	62.88	29.56	82.35	83.84	5,189	2,438
Kandhamal	49.80	50.20	55.18	44.82	169	169	69.98	36.19	87.45	87.95	5,630	3,402
Kendrapara	49.65	50.35	83.26	16.74	78	76	87.62	67.29	89.57	90.38	6,718	999
Keonjhar	50.58	49.42	65.22	34.78	116	117	72.53	46.71	91.67	91.79	7,134	2,920
Khurda	52.60	47.40	86.23	13.24	55	59	88.38	71.06	93.05	93.01	12,072	1,543
Koraput	50.04	49.96	58.27	41.73	136	135	47.58	24.81	87.66	88.68	6,376	3,430
Malkangiri	50.09	49.91	57.21	42.79	151	150	41.21	21.28	84.62	84.85	5,772	3,250
Mayurbhanj	50.50	49.50	57.42	42.58	44	52	66.38	38.28	89.08	89.34	5,150	2,922
Nabarangpur	50.19	49.81	57.43	42.57	117	116	47.36	21.02	85.83	86.91	4,767	2,670
Nayagarh	51.58	48.42	84.22	15.78	90	113	83.23	58.1	87.70	87.85	7,032	1,053
Nuapada	49.85	50.15	59.94	40.06	66	58	58.78	26.01	89.89	90.40	5,289	2,636
Puri	50.81	49.19	87.66	12.34	70	75	88.73	67.8	89.89	90.15	8,451	921
Rayagada	49.29	50.71	56.44	43.56	131	130	47.35	24.31	87.89	88.60	6,484	3,648
Sambalpur	50.77	49.23	61.15	38.72	93	117	78.87	54.79	88.70	88.72	7,904	3,870
Sonepur	50.87	49.13	63.05	36.95	95	97	80.3	47.28	91.18	91.22	5,852	2,663
Sundargarh	51.10	48.90	65.04	34.96	61	63	75.69	54.25	91.45	91.54	9,002	3,793
Orissa	50.71	49.29	68.79	31.21	97	96	75.95	50.97	89.38	89.79	7,468	2,614

Table 8.3 contd.

District	Health Index		Overall Literacy Index		Combined Enrolment Index		Education Index		Income Index	
	M	F	M	F	M	F	M	F	M	F
Angul	0.494	0.474	0.820	0.560	0.891	0.891	0.844	0.670	0.836	0.565
Balasore	0.596	0.314	0.818	0.596	0.891	0.892	0.842	0.695	0.557	0.285
Bargarh	0.500	0.353	0.779	0.500	0.900	0.900	0.819	0.633	0.609	0.360
Bhadrak	0.769	0.590	0.854	0.636	0.915	0.919	0.875	0.731	0.607	0.012
Balangir	0.474	0.462	0.704	0.393	0.895	0.902	0.767	0.562	0.606	0.339
Boudh	0.423	0.423	0.769	0.398	0.892	0.897	0.810	0.564	0.565	0.357
Cuttack	0.679	0.692	0.855	0.662	0.917	0.916	0.875	0.747	0.699	0.239
Deogarh	0.801	0.731	0.738	0.476	0.878	0.879	0.784	0.610	0.588	0.417
Dhenkanal	0.481	0.462	0.813	0.586	0.915	0.918	0.847	0.696	0.664	0.241
Gajapati	0.096	0.192	0.551	0.289	0.845	0.852	0.649	0.477	0.590	0.474
Ganjam	0.346	0.417	0.784	0.477	0.893	0.895	0.820	0.616	0.610	0.385
Jagatsinghpur	0.276	0.301	0.890	0.699	0.905	0.909	0.895	0.769	0.729	0.232
Jajpur	0.321	0.346	0.827	0.615	0.913	0.915	0.856	0.715	0.652	0.024
Jharsuguda	0.673	0.564	0.830	0.592	0.892	0.888	0.851	0.691	0.866	0.555
Kalahandi	0.744	0.782	0.629	0.296	0.823	0.838	0.694	0.477	0.541	0.330
Kandhamal	0.006	0.006	0.700	0.362	0.875	0.879	0.758	0.534	0.564	0.423
Kendrapara	0.590	0.603	0.876	0.673	0.896	0.904	0.883	0.750	0.614	0.080
Keonjhar	0.346	0.340	0.725	0.467	0.917	0.918	0.789	0.617	0.630	0.380
Khurda	0.737	0.712	0.884	0.711	0.930	0.930	0.899	0.784	0.778	0.202
Koraput	0.218	0.224	0.476	0.248	0.877	0.887	0.609	0.461	0.599	0.426
Malkangiri	0.122	0.128	0.412	0.213	0.846	0.849	0.557	0.425	0.571	0.410
Mayurbhanj	0.808	0.756	0.664	0.383	0.891	0.893	0.739	0.553	0.539	0.381
Nabarangpur	0.340	0.346	0.474	0.210	0.858	0.869	0.602	0.430	0.518	0.355
Nayagarh	0.513	0.365	0.832	0.581	0.877	0.878	0.847	0.680	0.626	0.095
Nuapada	0.667	0.718	0.588	0.260	0.899	0.904	0.692	0.475	0.547	0.352
Puri	0.641	0.609	0.887	0.678	0.899	0.901	0.891	0.752	0.678	0.058
Rayagada	0.250	0.256	0.474	0.243	0.879	0.886	0.609	0.457	0.604	0.443
Sambalpur	0.494	0.340	0.789	0.548	0.887	0.887	0.821	0.661	0.659	0.459
Sonepur	0.481	0.468	0.803	0.473	0.912	0.912	0.839	0.619	0.575	0.355
Sundargarh	0.699	0.686	0.757	0.543	0.915	0.915	0.809	0.667	0.696	0.454
Orissa	0.468	0.474	0.760	0.510	0.894	0.898	0.804	0.639	0.643	0.349

Table 8.3 contd.



District	Equally Distributed Health Index	Equally Distributed Education Index	Equally Distributed Income Index	GDI Value	GDI Rank
Angul	0.484	0.750	0.678	0.637	4
Balasore	0.415	0.763	0.380	0.519	14
Bargarh	0.414	0.716	0.454	0.528	13
Bhadrak	0.669	0.797	0.025	0.497	21
Balangir	0.468	0.650	0.436	0.518	16
Boudh	0.423	0.666	0.438	0.509	19
Cuttack	0.686	0.808	0.362	0.618	7
Deogarh	0.765	0.687	0.489	0.647	3
Dhenkanal	0.471	0.766	0.356	0.531	12
Gajapati	0.129	0.548	0.525	0.401	27
Ganjam	0.378	0.704	0.473	0.518	15
Jagatsinghpur	0.288	0.829	0.356	0.491	22
Jajpur	0.333	0.780	0.046	0.386	28
Jharsuguda	0.615	0.765	0.681	0.687	1
Kalahandi	0.762	0.565	0.410	0.579	8
Kandhamal	0.006	0.626	0.483	0.372	29
Kendrapara	0.596	0.810	0.141	0.516	18
Keonjhar	0.343	0.694	0.476	0.504	20
Khurda	0.725	0.841	0.331	0.632	5
Koraput	0.221	0.525	0.498	0.415	26
Malkangiri	0.125	0.482	0.478	0.362	30
Mayurbhanj	0.781	0.634	0.447	0.621	6
Nabarangpur	0.343	0.502	0.422	0.422	25
Nayagarh	0.429	0.757	0.169	0.452	23
Nuapada	0.691	0.563	0.428	0.561	9
Puri	0.625	0.817	0.108	0.516	17
Rayagada	0.253	0.521	0.510	0.428	24
Sambalpur	0.404	0.734	0.543	0.560	10
Sonepur	0.474	0.715	0.441	0.543	11
Sundargarh	0.692	0.733	0.552	0.659	2
Orissa	0.471	0.713	0.455	0.546	

Note: (i) For details regarding the method of estimation of IMR and estimated earned income separately for male and female for 30 newly created districts of Orissa, see Annexures IV and V.

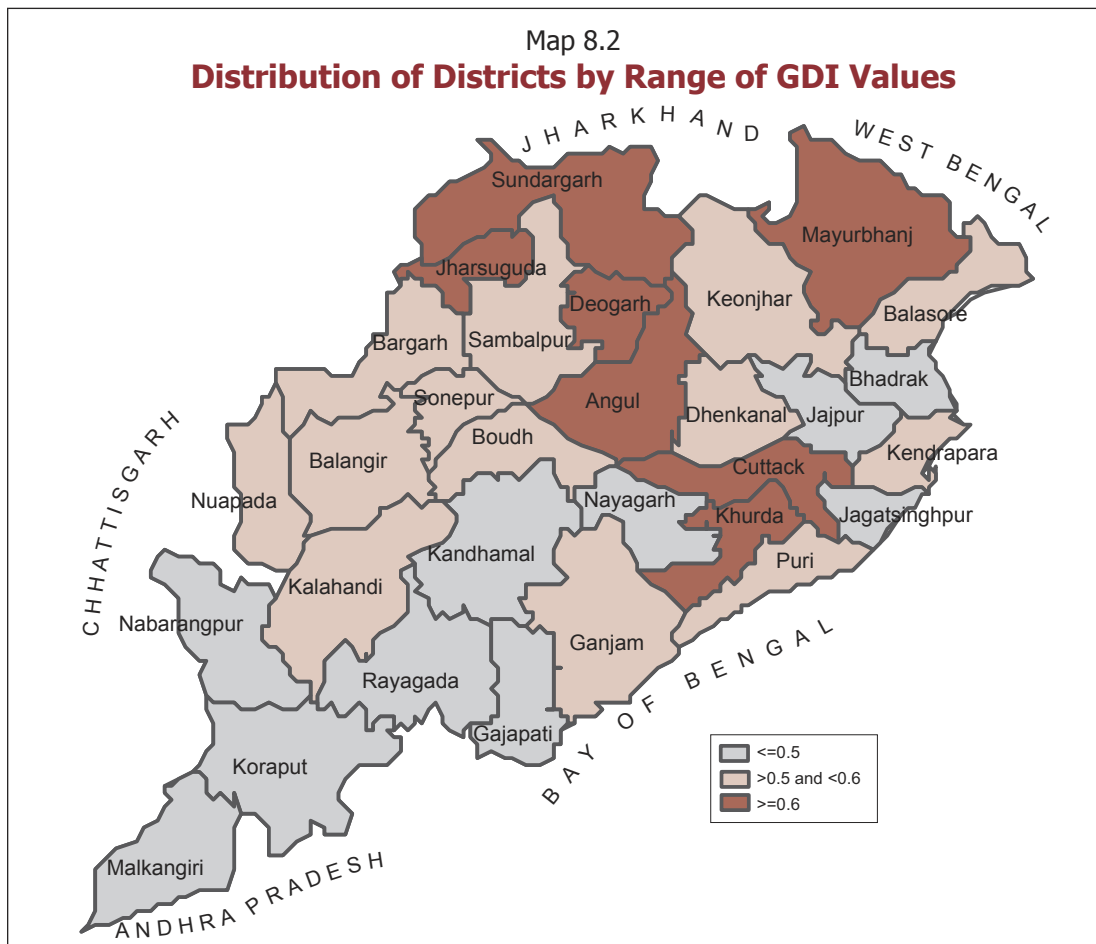
Source: (i) For literacy and enrolment: Government of India (2001), *Census of India: Provisional Population Totals, Series-22: Orissa, Paper 2*, Directorate of Census Operations, Orissa;
(ii) For male and female IMR: Government of Orissa (1999), *District Domestic Product of Thirty Districts of Orissa, 1993/94–1998/99 (1993–94 base), Summary Results*, Directorate of Economics and Statistics, District Income Cell, Bhubaneswar, Orissa.; S. Irudayaranjan and P. Mohanachandran (1998), 'Infant and Child Mortality Estimates-Part-I', *Economic and Political Weekly*, Vol. XXXIII, No. 19, 9–15 May; Sample Registration System;
(iii) For distribution of workers and non-workers: Government of India (2001), *Census of India: Provisional Population Totals, Series-22: Orissa, Paper 3*, Directorate of Census Operations, Orissa.



Table 8.4
Distribution of Districts by Range of GDI Values

GDI Value					
Orissa (0.546)					
District	≤0.5	District	>0.5 and <0.6	District	≥0.6
Malkangiri	0.362	Keonjhar	0.504	Cuttack	0.618
Kandhamal	0.372	Boudh	0.509	Mayurbhanj	0.621
Jajpur	0.386	Kendrapara	0.516	Khurda	0.632
Gajapati	0.401	Puri	0.516	Angul	0.637
Koraput	0.415	Balangir	0.518	Deogarh	0.647
Nabarangpur	0.422	Ganjam	0.518	Sundargarh	0.659
Rayagada	0.428	Balasore	0.519	Jharsuguda	0.687
Nayagarh	0.452	Bargarh	0.528		
Jagatsinghpur	0.491	Dhenkanal	0.531		
Bhadrak	0.497	Sonepur	0.543		
		Sambalpur	0.56		
		Nuapada	0.561		
		Kalahandi	0.579		

Source: Based on Table 8.3.



Source: Based on Tables 8.3 and 8.4.



Table 8.5
Ranking and Inter-District Disparities based on some Indicators of Human Development

District	RPCY Rank	HDI Rank	GDI Rank	HDI Rank minus GDI Rank	HDI Rank minus RPCY Rank
Khurda	3	1	5	-4	-2
Jharsuguda	1	2	1	1	1
Cuttack	6	3	7	-4	-3
Sundargarh	4	4	2	2	0
Deogarh	13	5	3	2	-8
Angul	2	6	4	2	4
Puri	15	7	17	-10	-8
Bhadrak	29	8	21	-13	-21
Mayurbhanj	23	9	6	3	-14
Kendrapara	27	10	18	-8	-17
Kalahandi	25	11	8	3	-14
Dhenkanal	12	12	12	0	0
Sambalpur	5	13	10	3	8
Nuapada	26	14	9	5	-12
Nayagarh	24	15	23	-8	-9
Sonepur	22	16	11	5	-6
Bargarh	16	17	13	4	1
Balasore	28	18	14	4	-10
Jagatsinghpur	8	19	22	-3	11
Ganjam	14	20	15	5	6
Balangir	18	21	16	5	3
Jajpur	19	22	28	-6	3
Boudh	20	23	19	4	3
Keonjhar	10	24	20	4	14
Rayagada	9	25	24	1	16
Nabarangpur	30	26	25	1	-4
Koraput	11	27	26	1	16
Gajapati	7	28	27	1	21
Kandhamal	17	29	29	0	12
Malkangiri	21	30	30	0	9

Table 8.5 Contd.

District	RPCY Value (in Rs)	HDI Value	GDI Value	Per cent difference between HDI Value and GDI Value
Khurda	7,353	0.736	0.632	14.13
Jharsuguda	11,210	0.722	0.687	4.85
Cuttack	6,116	0.695	0.618	11.08
Sundargarh	6,823	0.683	0.659	3.51
Deogarh	5,022	0.669	0.647	3.29
Angul	10,877	0.663	0.637	3.92
Puri	4,933	0.657	0.516	21.46
Bhadrak	3,916	0.646	0.497	23.07
Mayurbhanj	4,297	0.639	0.621	2.82
Kendrapara	3,964	0.626	0.516	17.57
Kalahandi	4,043	0.606	0.579	4.46
Dhenkanal	5,046	0.591	0.531	10.15
Sambalpur	6,171	0.589	0.560	4.92
Nuapada	4,018	0.581	0.561	3.44
Nayagarh	4,236	0.571	0.452	20.84
Sonepur	4,353	0.566	0.543	4.06
Bargarh	4,765	0.565	0.528	6.55
Balasore	3,961	0.559	0.519	7.16
Jagatsinghpur	5,340	0.557	0.491	11.85
Ganjam	5,013	0.551	0.518	5.99
Balangir	4,538	0.546	0.518	5.13
Jajpur	4,468	0.540	0.386	28.52
Boudh	4,436	0.536	0.509	5.04
Keonjhar	5,286	0.530	0.504	4.91
Rayagada	5,300	0.443	0.428	3.39
Nabarangpur	3,787	0.436	0.422	3.21
Koraput	5,148	0.431	0.415	3.71
Gajapati	5,498	0.431	0.401	6.96
Kandhamal	4,743	0.389	0.372	4.37
Malkangiri	4,436	0.370	0.362	2.16
Orissa	5,264	0.579	0.546	5.70
Mean	5,303	0.57	0.52	
SD	1,779	0.10	0.09	
CV	33.55	16.95	17.16	
	CORREL. (HDI, RPCY): 0.45		CORREL. (HDI, GDI): 0.89	

Note: Real per capita income (RPCY) is real per capita district domestic product at 1993–94 prices.

Source: Based on Tables 8.1 and 8.3.



However, it is striking that eight districts for which the GDI rank is lower than the HDI rank are *coastal* districts (Table 8.3), which are generally regarded as developed by conventional indicators. In fact, the per cent difference between HDI and GDI values is relatively more pronounced in the case of coastal districts (Table 8.3, last column), while the difference is much less in the case of districts that are known to be backward in terms of conventional indicators. However, the overall correlation between HDI and GDI is high at 0.89 (Table 8.3), suggesting that the average degree of gender disparity in the state is relatively low (a simple indicator of this is the fact that the mean values of HDI and GDI for the state are close to each other (0.57 and 0.52 respectively)). But then the level of human development itself is relatively low.

It is important to examine what happens when the per capita income grows, employment opportunities expand and educational and health attainments improve. It suffices here to point out that the proportionate difference between HDI and GDI values becomes a simple yet sensitive indicator of basic gender inequity.

8.4 Reproductive Health Index

Reproductive health is an area that naturally lies at the core of women's health. It is during the reproductive span that women are most susceptible to illnesses and typically, the gender bias of the health care delivery system is perhaps most pronounced in the context of reproductive health needs. These needs are now seen in the 'rights' perspective.

GDI is a gender-based disaggregation of HDI containing a health index. A properly specified reproductive health index (RHI) has been thought of as a disaggregation of GDI in order to focus on the most important aspect of women's health. Any RHI needs to, however, recognise the complexity of factors that directly or indirectly determine reproductive health status. The RHI constructed in this chapter is based on six indicators that together take into account a series of factors/conditions that adversely impinge on reproductive health at different stages of the reproductive span.

The mean value of RHI for the state as a whole turns out to be 0.55 (Table 8.6). This suggests, as in the cases of HDI and GDI, a somewhat medium level of reproductive health status of Orissa. The values of individual indicators are below the mean value, with the exception of contraceptive side effects index and the non-medical attention at birth index. These pull down the overall RHI value.



Table 8.6
RHI for 30 Districts of Orissa, 1998–99

District	Burden of Early Marriage Index	Burden of Higher Order Birth Index	Burden of Reproductive Tract Infection Index	Burden of Delivery and/or Post-delivery Complications Index
Angul	0.400	0.433	0.101	0.509
Balasore	0.284	0.427	0.264	0.696
Bargarh	0.398	0.419	0.136	0.496
Bhadrak	0.177	0.464	0.184	0.705
Balangir	0.577	0.447	0.100	0.498
Boudh	0.506	0.479	0.112	0.428
Cuttack	0.106	0.414	0.159	0.625
Deogarh	0.333	0.445	0.139	0.512
Dhenkanal	0.366	0.425	0.145	0.665
Gajapati	0.418	0.479	0.153	0.537
Ganjam	0.507	0.499	0.223	0.542
Jagatsinghpur	0.092	0.383	0.211	0.557
Jajpur	0.147	0.489	0.182	0.633
Jharsuguda	0.178	0.453	0.145	0.423
Kalahandi	0.594	0.497	0.090	0.449
Kandhamal	0.416	0.541	0.163	0.669
Kendrapara	0.158	0.420	0.211	0.570
Keonjhar	0.301	0.510	0.079	0.486
Khurda	0.234	0.347	0.202	0.525
Koraput	0.647	0.501	0.055	0.486
Malkangiri	0.560	0.496	0.135	0.432
Mayurbhanj	0.326	0.451	0.194	0.501
Nabarangpur	0.695	0.490	0.131	0.430
Nayagarh	0.535	0.392	0.092	0.506
Nuapada	0.425	0.523	0.157	0.543
Puri	0.140	0.374	0.221	0.550
Rayagada	0.385	0.472	0.123	0.401
Sambalpur	0.293	0.433	0.080	0.571
Sonepur	0.392	0.511	0.086	0.481
Sundargarh	0.170	0.440	0.073	0.498
Orissa	0.358	0.455	0.145	0.534
Mean	0.359	0.455	0.145	0.531
SD	0.17	0.05	0.05	0.08
CV	47.18	10.34	36.51	15.42

Table 8.6 contd.



District	Women Married below 18 years (%)	Women having 3rd or Higher Order Birth (%)	Women having Reproductive Tract Infection (%)	Women having delivery and/or Post-delivery Complications (%)	Women having Contraceptive Side Effects (%)	Non-medical Attention at Birth (%)
Angul	40.0	43.3	10.1	50.85	44.7	76.88
Balasore	28.4	42.7	26.4	69.63	60.3	74.12
Bargarh	39.8	41.9	13.6	49.63	57.4	53.44
Bhadrak	17.7	46.4	18.4	70.45	92.7	69.59
Balangir	57.7	44.7	10	49.75	87.5	63.03
Boudh	50.6	47.9	11.2	42.75	29.6	78.06
Cuttack	10.6	41.4	15.9	62.45	60.6	52.95
Deogarh	33.3	44.5	13.9	51.15	85.5	72.62
Dhenkanal	36.6	42.5	14.5	66.53	61	62.63
Gajapati	41.8	47.9	15.3	53.70	26.7	75.17
Ganjam	50.7	49.9	22.3	54.20	42.8	64.69
Jagatsinghpur	9.2	38.3	21.1	55.73	45.6	49.62
Jajpur	14.7	48.9	18.2	63.30	53.5	61.06
Jharsuguda	17.8	45.3	14.5	42.33	38.2	40.24
Kalahandi	59.4	49.7	9	44.88	44.8	76.46
Kandhamal	41.6	54.1	16.3	66.85	64.9	79.02
Kendrapara	15.8	42	21.1	57.03	72.2	59.96
Keonjhar	30.1	51	7.9	48.60	33	72.48
Khurda	23.4	34.7	20.2	52.48	95.6	32.94
Koraput	64.7	50.1	5.5	48.55	46.1	79.48
Malkangiri	56	49.6	13.5	43.18	47.8	88.81
Mayurbhanj	32.6	45.1	19.4	50.13	51.1	72.51
Nabarangpur	69.5	49	13.1	42.95	50.2	84.45
Nayagarh	53.5	39.2	9.2	50.63	62.8	58.07
Nuapada	42.5	52.3	15.7	54.30	59.6	78.42
Puri	14	37.4	22.1	55.00	81.7	45.30
Rayagada	38.5	47.2	12.3	40.95	39.3	70.86
Sambalpur	29.3	43.3	8	57.13	49.2	57.62
Sonepur	39.2	51.1	8.6	48.08	39	59.15
Sundargarh	17	44	7.3	49.80	53.4	51.18
Orissa	35.76	45.48	14.46	53.38	56.33	65.49

Table 8.6 contd.

District	Burden of Contraceptive Side Effects Index	Burden of Non-medical Attention at Birth Index	Average Reproductive Health Burden Index	RHI Value	RHI Rank
Angul	0.447	0.769	0.443	0.557	15
Balasore	0.603	0.741	0.503	0.497	25
Bargarh	0.574	0.534	0.426	0.574	9
Bhadrak	0.927	0.696	0.525	0.475	29
Balangir	0.875	0.630	0.521	0.479	28
Boudh	0.296	0.781	0.434	0.567	12
Cuttack	0.606	0.530	0.407	0.594	5
Deogarh	0.855	0.726	0.502	0.498	24
Dhenkanal	0.610	0.626	0.473	0.527	19
Gajapati	0.267	0.752	0.434	0.566	14
Ganjam	0.428	0.647	0.474	0.526	20
Jagatsinghpur	0.456	0.496	0.366	0.634	2
Jajpur	0.535	0.611	0.433	0.567	13
Jharsuguda	0.382	0.402	0.331	0.669	1
Kalahandi	0.448	0.765	0.474	0.526	21
Kandhamal	0.649	0.790	0.538	0.462	30
Kendrapara	0.722	0.600	0.447	0.553	16
Keonjhar	0.330	0.725	0.405	0.595	4
Khurda	0.956	0.329	0.432	0.568	11
Koraput	0.461	0.795	0.491	0.509	22
Malkangiri	0.478	0.888	0.498	0.502	23
Mayurbhanj	0.511	0.725	0.451	0.549	17
Nabarangpur	0.502	0.845	0.515	0.485	27
Nayagarh	0.628	0.581	0.456	0.544	18
Nuapada	0.596	0.784	0.505	0.495	26
Puri	0.817	0.453	0.426	0.574	10
Rayagada	0.393	0.709	0.415	0.585	8
Sambalpur	0.492	0.576	0.408	0.592	6
Sonepur	0.390	0.592	0.409	0.592	7
Sundargarh	0.534	0.512	0.371	0.629	3
Orissa	0.563	0.655	0.452	0.549	
Mean	0.559	0.654	0.450	0.550	
SD	0.18	0.14	0.05	0.05	
CV	32.71	20.69	11.32	9.28	

Source: Computed from data in Government of India (1999), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.

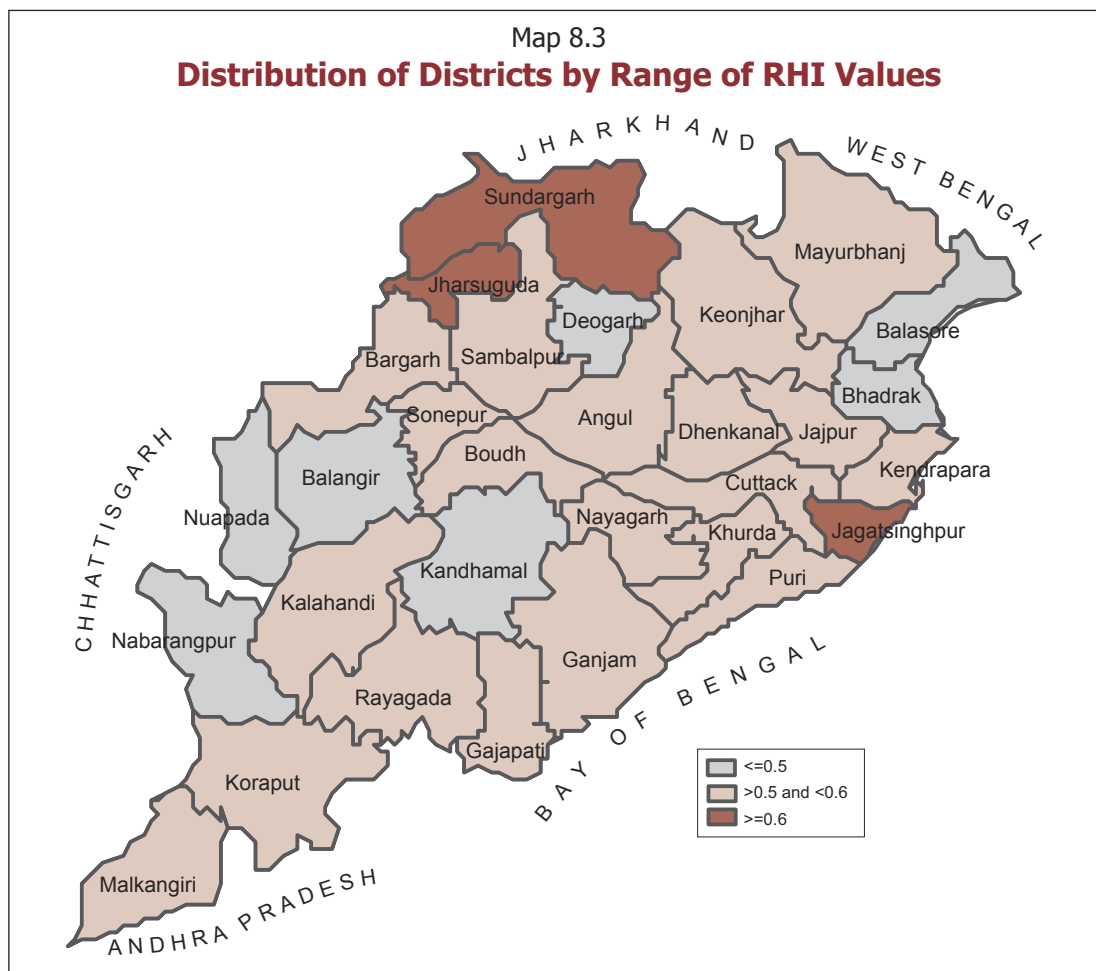


The top five districts in terms of RHI value are Jharsuguda, Jagatsinghpur, Sundargarh, Keonjhar, and Cuttack. Of these, Jharsuguda, Sundargarh, and Cuttack figure among the highest five in terms of HDI values while Jharsuguda and Sundargarh figure among the highest five in terms of GDI values.

Table 8.7
Distribution of Districts by Range of RHI Values

RHI Value					
Orissa (0.549)					
District	≤0.5	District	>0.5 and <0.6	District	≥0.6
Kandhamal	0.462	Malkangiri	0.502	Sundargarh	0.629
Bhadrak	0.475	Koraput	0.509	Jagatsinghpur	0.634
Balangir	0.479	Ganjam	0.526	Jharsuguda	0.669
Nabarangpur	0.485	Kalahandi	0.526		
Nuapada	0.495	Dhenkanal	0.527		
Balasore	0.497	Nayagarh	0.544		
Deogarh	0.498	Mayurbhanj	0.549		
		Kendrapara	0.553		
		Angul	0.557		
		Gajapati	0.566		
		Boudh	0.567		
		Jajpur	0.567		
		Khurda	0.568		
		Bargarh	0.574		
		Puri	0.574		
		Rayagada	0.585		
		Sambalpur	0.592		
		Sonepur	0.592		
		Cuttack	0.594		
		Keonjhar	0.595		

Source: Based on Table 8.6.



Source: Based on Tables 8.6 and 8.7.

The lowest five districts in terms of RHI value are Kandhamal, Bhadrak, Balangir, Nabarangpur, and Nuapada, of which Kandhamal and Nabarangpur figure among the lowest five in terms of HDI and GDI values.

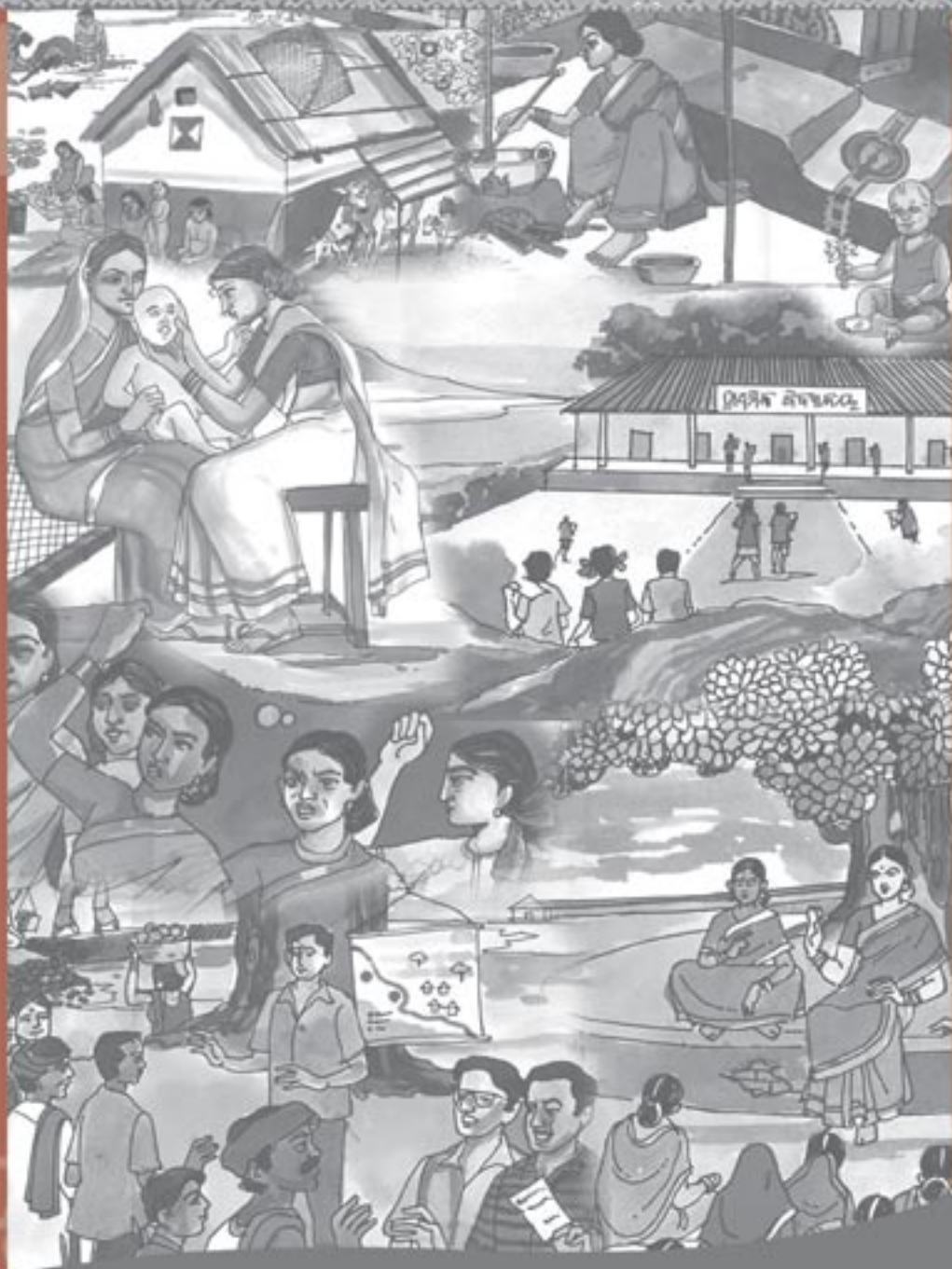
However, the inter-district disparity in RHI value is quite low (CV: 9.28). This is due to bunching of as many as 20 districts with RHI values (lying between 0.5 and 0.6) around the state mean RHI value (0.550) (Table 8.7). However, inter-district disparity is relatively high with respect to early marriage (CV: 47.18), reproductive tract infection (CV: 36.51), contraceptive side effects (CV: 32.71), and non-medical attention at birth (CV: 20.69). The high disparity in the first mentioned two cases is around

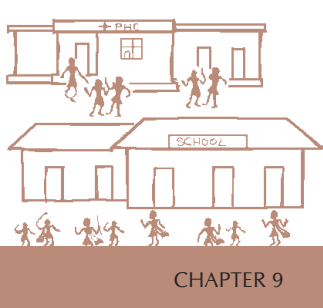
a low mean, while for the latter two it is around a high mean (Table 8.6). Therefore, from the point of view of reproductive health, there is a need to focus on these four factors in particular districts, in order to improve reproductive health status.

Overall, the three measures of human development examined above suggest a low average attainment, which is essentially due to the fact that a majority of the districts have values of HDI/GDI/RHI close to the mean value for the state as a whole. Therefore, the challenge of human development in the context of Orissa, is to focus on not only the districts at the bottom end but also on a large number of districts that are average performers.



CHAPTER 9 **Strategies for Financing Human Development**





Strategies for Financing Human Development

Broadly speaking, there are two major policy issues relating to the promotion of human development - namely, strategy for human development and financing of human development. The extent and pattern of financing of social sectors in Orissa for human development are examined below to see whether these sectors are adequately and appropriately funded as per certain standard (UNDP) norms.

9.1 Financial Position of Orissa and its Implications for Financing Human Development

State governments have a vital role to play in fostering human development. However, a poor state like Orissa is at a disadvantage due to the severe financial crunch faced by it. Not only is it facing increasing revenue and fiscal deficits but it has also accumulated a huge debt to finance the revenue deficit and the state plan. It is important to note that the gap between revenue receipt and revenue expenditure is more in the 1990s (compared to the 1980s) and the relative growth of revenue receipts to revenue expenditure has declined steadily. As a result, the financial position of the state has now become unsustainable.

The revenue deficit as a share of Gross State Domestic Product (GSDP) has steadily increased from 0.18 per cent in 1990–91 to 4.98 per cent for the fiscal 2000–01 (Table 9.1). The fiscal deficit has also risen sharply. But the real worry is the massive outstanding debt, which has increased at a steady rate. The total debt of the state government has increased from Rs 4,539 crore (42 per cent of GSDP) in 1990–91 to Rs 21,002 crore in 2000–01 (54 per cent of GSDP). The share of total expenditure in GSDP has, however, remained almost constant during this period (28.38 per cent in 1990–91 and 28.49 per cent in 2000–01).

Table 9.1
Fiscal Scenario of Orissa

(in Rs crore)

	1990–91	2000–01
GSDP at Current Prices	10,904	38,779
Total Expenditure	3,091.25 (28.35)	11,047.37 (28.49)
Revenue Deficit	19.59 (0.18)	1,931.97 (4.98)
Fiscal Deficit	656.23 (6.02)	3,325.27 (8.57)
Outstanding Debt	4,538.58 (41.62)	21,001.90 (54.16)

Note: Figures in brackets represent percentage share of GSDP.

Source: Estimated from (i) Government of Orissa, *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, relevant years; and (ii) Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, relevant years.

Thus, the financial position of Orissa is under severe strain both in terms of size and structure of the deficit. Due to a structural mismatch between revenue receipt and revenue expenditure, the state government is compelled to borrow in order to bridge the gap in the revenue account. Severe resource crunch and increasing committed expenditure have compelled the state to keep borrowing on a higher scale, leading to a net addition of Rs 3,000 crore to the debt stock per annum on an average.

The state government is now resorting to curtailment of the state budget, which can make it difficult to increase expenditure for the social sectors, especially the basic social sectors (Meher 2002b). In such a situation, the importance of prioritising public expenditure cannot be overemphasised.

9.2 Strategies for Financing Human Development

A relatively low level of human development and a



continuing high level of poverty in the state underline the importance of social sector expenditure by the government. Social sector expenditure is the most effective measure to improve human development through augmenting various social attainments like literacy rate, and life expectancy at birth. However, with the prevailing fiscal constraint in the state, it is of utmost importance to evaluate the government's commitment in terms of the expenditure incurred by it.

This section attempts to examine patterns of social sector spending by the government. It also explores the relationship between public expenditure on social sectors and human development. Finally, it probes into the possibility of restructuring the present expenditure patterns for better human development.

9.2.1 Trends in the Expenditure in Basic Social Sector and Social Priorities

As mentioned earlier, human development requires, among other things, greater investments in basic services like education, health, and nutrition. Investing in these sectors directly addresses the worst consequences of being poor (World Bank 1990). Consequently, it is of utmost importance to examine two important aspects relating to allocation of resources. They are inter-sectoral allocation to basic social sector, and intra-sectoral allocations aimed at addressing the priority concerns for human development.

Before discussing these two aspects in detail, the different segments of the social sector are discussed below. Efforts to reduce poverty are unlikely to succeed in the long run unless the government policy puts in greater effort towards progress in these areas. In Orissa, social needs remain high as is evident from the state's social attainment indicators. Orissa has always lagged behind the national average in terms of literacy rate, life expectancy rate, and infant/child mortality rate. Greater investment in these sectors can improve distributional outcomes in the economy as well as in the productive capabilities of the people.

On the other hand, sectors/areas that are of priority concerns for human development are really context-specific. UNDP's *Human Development Report 1991* has rightly observed that, what is considered a priority would naturally vary from one country to another, from one region to another, and this would change over time as human development proceeds. So, the items to be included in human priorities within the basic social sectors should be chosen very carefully.

In the context of Orissa, elementary education is treated as a priority area. This is because the literacy rate continues to be lower than the all-India level. The Government of India is endeavouring to provide free elementary education to all and has recognised the importance and merit of elementary education (Tilak 2002). This implies that elementary education is to be fully financed by the government. Further, there is a great deal of evidence which shows that not only are the economic returns on elementary education positive, they are also higher than returns on secondary and higher education (Tilak 2002).

Rural health services (RHS) under basic curative care as well as public health (PH) and maternity and child health (M&CH) under preventive health care, should be taken as priority areas. The infant mortality rate in Orissa (at 96 per 1000 births) is the highest amongst all states in India (68 per 1000 births at the all-India level in 2000). The variation in the infant mortality rate between the rural and urban areas in the state is also very high (99 per 1000 births in rural areas compared to 65 per 1000 births in urban areas). The morbidity rate as well as the maternal mortality rate (MMR) is higher in Orissa compared to that of other states. Therefore, both basic curative care (RHS) and preventive health care (PH, M&CH) are to be taken as priorities under the health sector in Orissa.

Rural water supply is taken as a priority area under water supply and sanitation. This is because more than three-fourths of the total population in Orissa lives in villages and a vast majority still uses contaminated



surface water for bathing, drinking, washing utensils, washing clothes and other domestic purposes. This results in high incidence of waterborne diseases like diarrhoea, child dysentery and gastroenteritis. In many areas, particularly in tribal and remote areas, people do not have access to safe drinking water.

Thus, elementary education, preventive health care, basic curative care (RHS, PH, M&CH), nutrition, rural water supply and sanitation are social priorities in the context of Orissa.

Inter-sectoral Allocation to Basic Social Sectors

Allocations to basic social services increased from Rs 653.38 crore in 1990–91 to Rs 2,469.17 crore in 2000–01 (Table 9.2). This increase was at a compound annual growth rate (CAGR) of 5.68 per cent (at 1993–94 prices) as against 4.16 per cent growth rate in the total expenditure for the same period. This implies that basic social services received favourable allocations during this period.

The share of education in the total expenditure fluctuated between 16 to 21 per cent, which remained

more than two and a half times that of other basic sectors. However, the share of education in Net State Domestic Product (NSDP) is an important indicator of the state's efforts to develop education. Although the Education Commission (Government of India 1966) and the Ramamoorthy Committee (Government of India 1991) recommended spending 6 per cent of the income on education, Orissa has not achieved this target except during 1999–2000.

The share of the health sector in the total expenditure fluctuated within a narrow range of 4.66 to 5.27 per cent, and its share in NSDP remained less than 1.5 per cent. This is well short of the recommended expenditure of 6 per cent of the income made by the ICSSR and ICMR panel (ICSSR and ICMR, 1981). Nutrition, as well as water supply and sanitation, together received less than 1 per cent of the state's income.

Intra-sectoral Allocation of Resources

Intra-sectoral allocation of resources depicts the pattern of allocation to various sub-sectors within each social sector and the level of performance of the

Table 9.2
Orissa: Allocation to Basic Social Sectors

(in Rs crore)

Item	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Education	451.43 [4.56] (16.47)	539.01 [4.21] (16.38)	616.96 [4.49] (16.97)	681.44 [4.29] (16.75)	811.84 [4.28] (17.41)	928.38 [3.99] (18.04)	1065.22 [4.80] (17.79)	1195.09 [4.36] (18.69)	1461.76 [4.96] (18.90)	1913.77 [6.13] (20.67)	1735.72 [5.64] (17.95)
Health	140.38 [1.42] (5.12)	169.01 [1.32] (5.14)	175.3 [1.27] (4.82)	197.25 [1.24] (4.85)	245.77 [1.29] (5.27)	265.38 [1.14] (5.16)	295.83 [1.33] (4.94)	306.7 [1.12] (4.80)	405.3 [1.38] (5.24)	431.51 [1.38] (4.66)	458.94 [1.49] (4.75)
Water Supply and Sanitation	48.88 [0.49] (1.78)	83.7 [0.65] (2.54)	104.38 [0.76] (2.87)	97.09 [0.61] (2.39)	108.66 [0.57] (2.33)	153.41 [0.66] (2.98)	149.61 [0.67] (2.50)	189.02 [0.69] (2.96)	242.98 [0.82] (3.14)	243.43 [0.78] (2.63)	221.45 [0.72] (2.29)
Nutrition	12.69 [0.13] (0.46)	14.73 [0.12] (0.48)	19.26 [0.14] (0.53)	24.63 [0.16] (0.61)	22.70 [0.12] (0.48)	90.82 [0.39] (1.76)	94.10 [0.42] (1.57)	68.84 [0.25] (1.08)	75.60 [0.26] (0.98)	67.76 [0.22] (0.72)	53.06 [0.17] (0.55)
Total	653.38	806.45	915.9	1000.4	1188.9	1437.9	1604.76	1759.65	2185.64	2656.47	2469.17

Note: (i) Figures in square brackets show the percentage of NSDP at current market prices.
(ii) Figures in round brackets show the percentage to the total expenditure.

Source: Estimated from (i) Government of Orissa, *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, relevant years; and (ii) Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, relevant years.

state in terms of the weightage given to the priority areas. It gives an insight into the distributional aspects of budget expenditure, which may be useful for policy purposes. Trends in intra-sectoral allocations as well as the trends in allocation made to social priorities during 1990–91 to 2000–01 are discussed below.

(a) Education

A perusal of the data on intra-sectoral allocation within education reveals that the allocation towards elementary education ranged from 55 to 58 per cent between 1990–91 and 1998–99 (Table 9.3). It reached the highest level of 65 per cent in 1999–2000, and then declined to 60 per cent in 2000–01. The allocation towards higher education did not change much and that towards secondary education

registered some degree of annual variation. Technical education seems to have suffered in terms of relative allocations after 1994–95. The CAGR for the education sector was 6 per cent (at 1993–94 prices).

Elementary education, the priority area under education, received a major share of the total education expenditure and grew at 6.68 per cent (at 1993–94 prices), a rate higher than the growth rate of the total education expenditure. But it still remained lower than the two-thirds norm prescribed by the Education Commission (Government of India 1966) and the Ramamoorthy Committee (Government of India 1991).

Table 9.3
Orissa: Intra-sectoral Allocation of Education Expenditure

(in Rs crore)

Year	Elementary*	Secondary	University and higher	Technical	Others	Total
1990–91	247.68 (54.87)	112.24 (24.86)	64.99 (14.39)	17.49 (3.87)	9.03 (2.01)	451.43 (100.00)
1991–92	313.07 (58.08)	119.04 (22.08)	81.06 (15.04)	17.02 (3.15)	8.82 (1.65)	539.01 (100.00)
1992–93	360.1 (58.36)	139.49 (22.60)	87.02 (14.10)	19.01 (3.08)	11.34 (1.86)	616.96 (100.00)
1993–94	390.01 (57.23)	168.32 (24.70)	94.12 (13.81)	15.00 (2.20)	13.99 (2.06)	681.44 (100.00)
1994–95	449.48 (55.37)	193.14 (23.79)	128.01 (15.77)	25.16 (3.09)	16.05 (1.98)	811.84 (100.00)
1995–96	509.43 (54.87)	228.74 (24.64)	153.82 (16.57)	26.08 (2.81)	11.03 (1.11)	928.38 (100.00)
1996–97	581.52 (54.59)	271.56 (25.49)	161.8 (15.85)	28.80 (2.70)	21.54 (1.37)	1065.22 (100.00)
1997–98	683.04 (57.15)	297.07 (24.85)	175.26 (14.67)	26.42 (2.21)	13.3 (1.12)	1195.09 (100.00)
1998–99	804.38 (55.03)	416.69 (28.50)	195.11 (13.55)	28.13 (1.92)	17.45 (1.20)	1461.76 (100.00)
1999–2000	1243.19 (64.96)	421.78 (22.04)	209.47 (10.94)	19.33 (1.01)	20.00 (1.05)	1913.77 (100.00)
2000–01	1040.85 (59.97)	441.18 (25.42)	212.15 (12.22)	20.72 (1.19)	20.82 (1.20)	1735.72 (100.00)

Note: * Priority under education;
Figures in parentheses represent percentage share.

Source: Computed from Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

(b) Health

Within the health sector, the medical component had the highest share in health expenditure, i.e. more than 60 per cent for all years (Table 9.4). However, within this sub-sector, urban health services (UHS) received a higher allocation in comparison to RHS except for the two years 1991–92 and 1994–95. The second largest component under health was family welfare, where expenditure under maternal and child health varied between one to three per cent for most of the years. The third largest component under health was public health, which had a low share of less than 15

per cent for most of the years (i.e., since 1993–94). The allocation towards preventive health and basic curative care (RHS, PH, M&CH), the priority under health was around 41 per cent during most years.

(c) Water Supply and Sanitation

As noted earlier, the share of water supply and sanitation in the total expenditure moved within a narrow range of two to three per cent. However, out of the total allocation made to this sector, the share of water supply is more than 95 per cent for all the years (Table 9.5), except for the years 1995–96

Table 9.4
Orissa: Intra-sectoral Allocation of Health Expenditure

(in Rs crore)

Year	RHS	UHS	Others	Medical	Public health	Family welfare	Maternal and child health	Preventive health and basic curative care*	Total
(1)	(2)	(3)	(4)	(5) = (2+3+4)	(6)	(7)	(8)	(9)	(10) = (5+6+7)
1990–91	34.07 [39.33]	41.08 [47.42]	11.48 [13.25]	86.63 (61.72)	22.85 (16.27)	30.90 (21.01)	0.72 [2.33]	57.64 (41.06)	140.38 (100.00)
1991–92	52.73 [48.84]	45.11 [41.78]	10.12 [9.38]	107.96 (63.88)	26.38 (15.60)	34.67 (20.52)	0.87 [2.51]	79.98 (47.32)	169.01 (100.00)
1992–93	45.75 [42.29]	50.58 [46.75]	11.86 [10.96]	108.19 (61.72)	29.89 (17.05)	37.22 (21.23)	0.99 [2.66]	76.63 (43.71)	175.30 (100.00)
1993–94	51.40 [42.48]	54.84 [45.31]	14.78 [12.21]	121.02 (61.35)	28.81 (14.61)	47.42 (24.04)	1.11 [2.34]	81.32 (41.23)	197.25 (100.00)
1994–95	77.48 [48.78]	64.49 [40.60]	16.86 [10.62]	158.83 (64.63)	35.09 (14.28)	51.85 (21.09)	2.19 [4.22]	114.76 (46.69)	245.77 (100.00)
1995–96	70.68 [42.84]	76.50 [46.37]	17.79 [10.79]	164.97 (62.16)	39.09 (14.73)	61.32 (23.11)	1.16 [1.89]	110.93 (41.80)	265.38 (100.00)
1996–97	78.52 [40.32]	83.21 [42.73]	33.02 [16.95]	194.75 (65.83)	40.81 (13.79)	60.27 (20.38)	0.82 [1.36]	120.15 (40.62)	295.83 (100.00)
1997–98	84.99 [42.61]	90.03 [45.13]	24.46 [12.27]	199.48 (65.04)	45.33 (14.78)	61.89 (20.18)	0.70 [1.13]	131.02 (42.72)	306.7 (100.00)
1998–99	106.58 [40.64]	126.00 [48.04]	29.68 [11.32]	262.26 (64.71)	59.52 (14.68)	85.32 (20.61)	0.64 [0.77]	166.74 (41.14)	405.3 (100.00)
1999–2000	110.35 [37.77]	151.10 [51.72]	30.7 [10.51]	292.15 (67.70)	63.51 (14.71)	75.85 (17.58)	3.21 [4.23]	177.07 (41.04)	431.51 (100.00)
2000–01	124.63 [38.89]	153.11 [47.77]	42.76 [13.34]	320.5 (69.83)	62.52 (13.63)	75.92 (16.54)	1.39 [1.83]	188.54 (41.08)	458.94 (100.00)

Note: * Priority under health comprises of cols. 2, 6, and 8 and figures in round brackets indicate its share to col. 10. Figures in square brackets in cols. 2, 3, and 4 indicate the percentage to col. 5 and in col. 8 indicate the percentage to col. 7.

Source: Computed from Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, relevant years.

and 1996–97 when it was below 90 per cent. The allocation of expenditure within water supply shows that the share of rural water supply was subject to wide fluctuation (26–58 per cent) and has had a declining trend, which is a matter of concern. On the other hand, due emphasis has been given for the provision of water supply in urban areas. The community does not pay for the operation and maintenance in either of these two sectors. In the rural areas it is borne completely by the state.

Within the sub-sector of water supply and sanitation, we find that the priority area (rural water supply and sanitation) received less than 50 per cent of the total expenditure for most of the years during 1990–91 to 2000–01. Table 9.5 shows that while the growth of expenditure on water supply and sanitation was 6.22 per cent, the CAGR of the priority area under this sector was less than 1 per cent (0.96 per cent at 1993–94 prices).

Table 9.5
Intra-sectoral Allocation in Water Supply and Sanitation

(in Rs crores)

Year	Water supply	Rural water supply	Urban water supply	Others	Sanitation (rural + urban)	Rural water supply and sanitation*	Total
1	2 = (3+4+5)	3	4	5	6	7	8 = (2+6)
1990–91	47.27 (96.70)	26.33 [55.70]	14.3 [30.25]	6.64 [14.05]	1.61 (3.30)	27.94 (57.16)	48.88 (100.00)
1991–92	78.78 (94.12)	34.12 [43.31]	17.65 [22.40]	27.01 [34.29]	4.92 (5.88)	39.04 (46.63)	83.7 (100.00)
1992–93	103.8 (99.44)	40.8 [39.31]	28.09 [27.06]	34.91 [33.63]	0.58 (0.56)	41.38 (39.64)	104.38 (100.00)
1993–94	96.03 (98.91)	55.58 [57.88]	18.79 [19.56]	21.66 [22.56]	1.06 (1.09)	56.64 (58.33)	97.09 (100.00)
1994–95	106.16 (97.70)	45.43 [42.80]	21.65 [20.39]	39.08 [36.81]	2.5 (2.30)	47.93 (41.11)	108.66 (100.00)
1995–96	126.85 (82.69)	50.4 [39.73]	22.25 [17.54]	54.2 [42.73]	26.56 (17.31)	76.96 (56.17)	153.41 (100.00)
1996–97	133.93 (89.52)	47.61 [35.55]	33.43 [24.96]	52.89 [39.49]	15.68 (10.48)	63.29 (42.29)	149.61 (100.00)
1997–98	180.14 (95.3)	66.62 [36.98]	38.42 [21.32]	75.1 [41.70]	8.88 (4.70)	75.5 (39.94)	189.02 (100.00)
1998–99	234.11 (96.35)	60.05 [25.66]	71.8 [30.66]	102.26 [43.68]	8.87 (4.65)	68.92 (28.36)	242.98 (100.00)
1999–2000	233.09 (95.75)	63.85 [27.39]	64.16 [27.53]	105.08 [45.08]	10.34 (4.25)	74.19 (30.48)	243.43 (100.00)
2000–01	212.00 (95.73)	74.03 [34.92]	105.08 [45.08]	91.39 [43.11]	9.45 (4.37)	83.48 (37.69)	221.45 (100.00)

- Note: (i) * Priority under water supply and sanitation comprises of cols. 3 and 6.
(ii) Figures in square brackets show percentage of total expenditure under water supply.
(iii) Figures in round brackets show percentage to total expenditure under water supply and sanitation.
(iv) 'Others' include direction and administration, training, survey and investigation, machinery and equipment, assistance to local bodies, tribal area sub-plan, suspense and other expenditures for both rural and urban water supply programmes.

Source: Computed from Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, relevant years.

(d) Nutrition

About half of Orissa's population is still below the poverty line and a majority of the children are still undernourished. Given this situation, government spending on special nutrition programmes like mid-day meals and others are seen as a stimulant to increase the productive capacity of the people. Allocation to nutrition sector rose steadily from Rs 12.69 crore in 1990–91 to Rs 94.10 crore in 1996–97, but then declined to reach Rs 53.06 crore in 2000–01 (Table 9.2). Therefore, the annual growth rate of 10.98 per cent (at 1993–94 prices) can be attributed to the steep increase in the allocation to this sector till 1996–97.

9.2.2 Relation between Public Expenditure and Human Development

The need for government intervention in terms of fiscal policy for investment in the people's capacity building is particularly urgent in Orissa, where the poverty ratio is very high. Through sufficient expenditure on social priority areas, human capabilities can be enhanced and the standard of living can be improved.

The UNDP's *Human Development Report 1991* introduced four government expenditure ratios, viz., the Public Expenditure Ratio (PER), the Social Allocation ratio (SAR), the Social Priority Ratio (SPR), and the Human Expenditure Ratio (HER) as indicators of the extent of political commitment of the government to the social sector. The PER is the proportion of the state income that goes into public expenditure. The SAR is the percentage of public expenditure earmarked for social services. The SPR is the percentage of social expenditure devoted to human priority concerns - namely elementary education, public health, maternal and child health and nutrition, and rural water supply and sanitation. The HER is the percentage of the state income devoted to human priority concerns. Hence, by definition, HER is the product of the other three ratios.

Based on the experiences of a number of countries

that were associated with better human development outcomes, the UNDP report (1991) suggested certain expenditure norms. It was suggested that HER of 5 per cent is essential if a country was to do well on the human development front. This may be achieved in an efficient manner by keeping the PER moderate (around 25 per cent), allocating much of this to social sector (more than 40 per cent), and focusing on social priority areas (giving them more than 50 per cent).

HER is a powerful operational tool. It allows policy makers to restructure their budget, address any existing imbalances and avail the most appropriate options. States with HER over 5 per cent are supposed to indicate a good political commitment from the government to human priority or social priority concerns. Those states for which HER lies between three to five per cent have moderate human priority concerns. A HER below 2 per cent suggests lack of political commitment for human priorities. The trends in HER and the other three ratios are presented in Table 9.6.

The following findings may be highlighted:

1. Between 1990–91 and 1994–95, the PER ranged between 25 and 28 per cent, somewhat closer to the norm suggested by the UNDP. However, the fiscal tightening during the reform years led to a decline in this ratio to around 22 per cent for the year 1995–96. After the implementation of the pay revisions, there was a cascading effect on state finances, leading to a significant increase in this ratio to 31 per cent for the year 2000–01.
2. In terms of allocation to social services, the SAR in Orissa has always remained lower than the 40 per cent norm suggested by the UNDP (except for the year 1999–2000) due to the proliferation of revenue expenditure under the salary heads. Despite year-to-year variations, the ratio remained between 33 and 35 per cent for most of the years, implying that there is reduction in non-salary inputs with possible adverse impact on quality in social service provisions.
3. The SPR also falls well short of the 50 per cent norm suggested by the UNDP. The ratio stayed



Table 9.6
Orissa: Select Social Expenditure Ratios

(in per cent)

Year	Public Expenditure Ratio (PER)	Social Allocation Ratio (SAR)	Social Priority Ratio (SPR)	Human Expenditure Ratio (HER)
1990–91	27.69	32.28	39.09	3.49
1991–92	25.68	33.16	40.95	3.49
1992–93	26.45	34.09	40.13	3.62
1993–94	25.64	33.87	40.11	3.48
1994–95	24.59	33.90	40.17	3.35
1995–96	22.10	36.72	41.72	3.39
1996–97	26.98	35.19	40.03	3.80
1997–98	23.30	35.73	41.57	3.22
1998–99	26.25	35.99	40.08	3.79
1999–2000	29.68	43.74	38.58	5.01
2000–01	31.39	33.50	42.17	4.43

Notes: PER: Total Expenditure/NSDP; SAR: Social Service Expenditure/Total Expenditure; SPR: Social Priority Expenditure/Social Service Expenditure; HER: Social Priority Expenditure/NSDP.

Source: Estimated from (i) Government of Orissa, *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, relevant years; and (ii) Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, relevant years.

at around 40 per cent, with a marginal increase to 42 per cent in 2000–01.

- The HER, which takes social priority expenditure as a proportion of NSDP, remained well below the recommended 5 per cent except for the year 1999–2000, when it touched the desired level. This however does not mean that the quantity of services under the priority sectors has increased during 1999–2000. This is because the SPR remained below 40 per cent in 1999–2000, which is the lowest since 1991–92. Though PER values are above 25 per cent for most of the years, yet low values of SAR and SPR resulted in low HER values. The value of HER for Orissa suggests a moderate degree of political commitment to human priorities.

However, HER by itself cannot reveal the true picture of human development, unless human development spending per person in absolute terms is taken into account (UNDP 1991). HER and real per capita human expenditure are presented in Table 9.7,

which shows that while the real per capita human expenditure was Rs 150 in 1990–91, it increased to Rs 167 in 1993–94, and then declined to Rs 164 in 1994–95. It then showed a continuous increase to reach the highest level of Rs 264 in 1999–2000, and then declined to Rs 230 in 2000–01. Thus, real per capita human expenditure increased at an annual compound rate of 4.52 per cent as against 6 per cent growth of per capita expenditure in basic social sectors (at 1993–94 prices).

9.2.3 Restructuring Present Expenditure Pattern for Human Development

The state government can restructure its present expenditure pattern in the medium term for promoting human development. The possible avenues for restructuring are briefly discussed below.

A high PER is neither a virtue nor a necessity. Public spending must facilitate, encourage, and complement private spending to ensure that human development needs are met. Even a PER of 20–25 per cent is



Table 9.7

Orissa: Human Expenditure Ratio (HER) and Real Per Capita Human Expenditure

Year	HER (in per cent)	Real Per capita Human Expenditure (in Rs)
1990–91	3.49	150
1991–92	3.49	166
1992–93	3.62	166
1993–94	3.48	167
1994–95	3.35	164
1995–96	3.39	171
1996–97	3.80	177
1997–98	3.22	182
1998–99	3.79	206
1999–2000	5.01	264
2000–01	4.43	230

Source: Official Communication from Central Statistical Organisation (CSO), 2002.

enough to allow sufficient spending on priority areas (UNDP 1991). In the case of Orissa, the public expenditure is high, but the social allocation ratio is low. Therefore, there is a need to restructure the pattern of expenditure in favour of the social sector. While a high SAR does not guarantee a good human development performance, it does make an important contribution (UNDP 1991). Hence, increasing SAR is desirable, by switching resources from other areas of government expenditure. But increasing SAR should not be at the cost of diverting resources from the spending on economic sector, as widespread cutbacks of public spending on economic services could be a hindrance to potential economic growth of the state. The budget should be restructured so as to curtail its non-developmental expenditure.

There is also a possibility of restructuring the budget under the social service sector so that more funds could be released to social priorities. This can be done by restructuring the intra-sectoral allocation, within the basic social sectors, as well as by diverting resources from other social services to these basic sectors. Hence, a re-evaluation of the financial

allocation in public expenditure to basic sectors is needed. The government has to find out suitable alternatives to re-allocate resources in favour of elementary education. It has to look for ways to release more resources for preventive and basic curative care, vis-à-vis tertiary health institutions, where the state government is spending three-fifths of the total allocation. There is an urgent need for the government to give more importance to rural health services in comparison to urban health services, both infant mortality rate (IMR) and MMR being relatively high in rural areas. The government also has to take similar steps regarding rural water supply.

Under the existing financial crunch, releasing adequate funds for the social sector could be a difficult task. In such a situation, the government has to look for cost effective alternatives without compromising on the quality of basic social services or reducing the access to the services. The opportunities for cost savings in education are many. They include measures such as reducing repetitions, more efficient use of community resources, multiple shifts, selective increases in class size and introduction of cost recovery at the tertiary level. But, the quality of education should not be sacrificed to obtain savings in unit costs (the engagement of para-teachers in primary education is perhaps a case in point). Similarly, for the health sector, the state government could make large savings by moving to lower cost treatment, choosing more appropriate drugs and buying them more efficiently. In fact, many of the cost-effective treatment regimes are just as effective as high-tech alternatives. Again, for water and sanitation, new technologies and better management structure can contribute towards cost reductions.

Moreover, appropriate user charges can be applied to recover some of the real cost of services from those who can afford to pay for them. If this happens, the government could generate more funds, which could then be used for social expenditure in priority areas. Budgetary subsidies should be reserved for social programmes that reach the masses rather than those



that benefit a few elites—for primary health care services rather than urban hospitals, for elementary education rather than higher and university level education. The state government has already taken some welcome initiatives in this area and it should continue to do so by identifying more areas in which subsidies are socially inappropriate.

There exists now sufficient international experience, including that from India, to show that the involvement of local non-governmental organisations (NGOs) in the provision of basic social services for the poor can improve both the quality and availability of these services. NGOs are already active in several fields, such as education and health care. They are able to achieve considerable improvement, at lower cost, in providing basic services to the poor. Their main advantage is a higher level of motivation. The government would do well to channel as much of its social expenditure as possible through local NGOs. NGOs should, however, be subject to periodical financial and performance audit, besides social audit and accountability to Panchayati Raj Institutions.

Finally, the aim of public spending is to deliver social services to the poor, since it is normally the poor who rely to a greater extent on government provisioning of these basic services. In pursuit of too many objectives with limited resource availability, the state government seems to have ended up spreading resources too thinly across a wide variety of expenditure programmes. As a result of this the poor are not getting the actual benefits. Thus, expenditure programmes must be target oriented and specific. Prioritisation and rationalisation of expenditure along with mobilising additional resources for higher levels of spending in priority areas, are highly desirable.

Leakages and misutilisation of resources can affect the efficiency and effectiveness of public expenditure, including social sector expenditure. The allocation/re-allocation of resources needs to take into account this problem.

9.3 Strategies for Human Development: Some Key Issues

In the context of Orissa, public policy for promoting human development has to contend with the fact that a low level of human development is accompanied by a very high poverty ratio and a poor growth performance. In such a scenario, it may be suggested that the optimal policy objective should be to forge strong links between growth and human development so that both become mutually reinforcing (UNDP 1996).

9.3.1 Links from Growth to Human Development

Growth acts on human development through two main routes: (i) the influence of household activity and spending on human development, and (ii) the influence of government policies and expenditures.

Household activities—which are unpaid and done mostly by women—such as managing the household, raising children, and caring for the sick and elderly, contribute directly and significantly to human development. Households also contribute to human development by using their income to purchase food, medicines, schoolbooks, and other essential items.

Studies have shown that increased household income results in improved educational attainment and health (UNDP 1996, pp. 68–69). These studies also bring out the importance of combining income with greater education: cross-country analysis identifies per capita income and adult literacy as the most important determinants of life expectancy. It is for this reason that the State government has launched Mission Shakti for organising and assisting Women Self Help Groups.

Several studies also suggest that income is more likely to be spent on human development when women have control over decisions regarding household expenditures (UNDP 1996, pp. 68–69).

Government action that contributes to economic growth results in a larger pool of resources for human

development, even if a constant share of GDP is allocated to public and private spending on health, education, and other human development concerns. Whether or not additional resources are actually used to enhance human development depends on patterns of growth.

Now, government policies ‘... can encourage patterns of growth that create jobs, increase real wages and raise market demand for human capital—and thus for the health care and education that enhance this capital. So, by contributing to growth and influencing its patterns, governments influence both the supply of, and the demand for, human capital’ (UNDP 1996, p. 70). Supportive government action is required to induce private investment in human capital by making people aware of future returns. Because of externalities generated by such investments wherein private returns fall short of social return, the government, acting on society’s behalf, should make more of such investments than individuals or households.

However, increased spending in social sectors is not enough by itself; equally important are selecting priorities and using resources effectively. Decentralisation of public services to local governments, efficient allocation of available resources, and provision of appropriate complementary inputs (for example, safe water needs to be complemented by education) are some factors that can lead to more effective utilisation of resources.

It is therefore clear that for growth to positively impact human development, the mediating role of well-directed policy actions on the part of the government is absolutely essential.

9.3.2 Links from Human Development to Growth

The main link in the chain running from human development to growth is the increased productivity of workers, especially poorer workers, on account of improved nutrition, health, and education.

Increased calorie intake is known to lead to gains in labour productivity of up to 47 per cent. Studies show that when workers get more calories or micronutrients, their productivity improves. As regards child nutritional supplements, it has been shown that these generate productivity benefits six to eight times the cost of the original intervention. A health nutritional programme for children in Colombia is known to have increased their lifetime earnings considerably.

Similarly, the impact of health and education on growth has been shown to be significant. It has been brought out that the kinds of investment on education that brings highest returns (namely, that in basic schooling) tend to enhance equality (UNDP 1996, p. 76)

In short, two major factors are involved in strengthening the links from human development to economic growth: first, accumulation of human capital—through investments in health and nutrition, education and skill training, and research and development; and second, accessible opportunities for people to contribute to economic development—through social, political, and economic participation.

The discussion of strategic issues relating to the desirable synergy between economic growth and human development—something that is relevant in the context of Orissa—is meant to bring into sharper focus the crucial role of government policies which can influence the patterns of growth and thereby affect the demand for, and supply of, human capital.



CHAPTER 10 **The Challenges Ahead**





The Challenges Ahead

Given its agro-climatic conditions, natural resource endowments, and long coastline, Orissa is often cited as a case of unfulfilled potential for both agricultural and industrial growth. This was perceived early (during the First Five Year Plan), and huge public investments were made to create a large-scale irrigation system and industrial base, resulting in fairly impressive growth during the 1960s. However, it soon became apparent that such growth was heavily concentrated in a few pockets of the state. The resultant inter-regional disparities—whether in terms of infrastructural development or the extent of chronic poverty—have tended to widen over time.

In the context of Orissa, broad-based growth would essentially mean making this happen in the Kalahandi, Balangir, and Koraput (KBK) region and in other tribal districts where chronic poverty is among the highest in the country, giving rise to serious food insecurity. Certain elements of a labour-intensive growth strategy in these regions may be suggested :

- Improvement in agricultural productivity, through crop diversification, improved cultural practices, deepening market-led intervention. Adoption of small-scale locally managed irrigation, soil and water conservation through the watershed development model, rainwater harvesting structure and lift irrigation.
- Promotion of second crops like pulses, oilseeds, grams, vegetables for supplementary income of small and marginal farmers and wherever suitable, introduction of second non-paddy crops.
- Cultivation of horticultural and plantation crops, on high and marginal lands, with proper marketing support.
- Increasing access to institutional credit.

- Reducing the dependence of tribal people on forest resources, by increasing agricultural income (through better productivity) and by increasing the number of days of employment.
- Provision of all weather connectivity to and between rural and urban growth centres.
- Generation of supplementary employment through public works programmes with a food transfer component.
- Promotion of rural industries based on locally available materials and local labour.
- Safeguard the customary rights of tribal population to land and forests, in order to ensure their livelihood security.
- Undertake measures for upgradation of skills of the populations, particularly the workforce.
- Initiate Joint Forest Management

While the above measures are meant to increase incomes of the poor, food security requires certain additional measures. These include:

- Involvement of Panchayati Raj Institutions (PRIs) and Self Help Groups in the management of the Public Distribution System (PDS) in order to minimise corruption and leakage.
- Inclusion of coarse cereals for sale through PDS outlets.
- Community managed grain banks.

Absolute poverty, food insecurity, and malnutrition are fundamental forms of deprivation. However, ill health is an equally serious form of deprivation, involving loss of income, probable expenditure on health care and, above all, survival risk. In the context of Orissa, survival risk is particularly high in the case of infants and children. Infectious and communicable diseases dominate the illness pattern, exposing the entire population to the risk of contracting these diseases.



Thus, provision of health care is of critical importance. There are two sets of factors that need to be considered here: supply side and demand side. This Report deals exclusively with the supply side. On the supply side, in the context of Orissa, the following points may be highlighted:

- Provision of basic curative as well as preventive and promotional care in a cost-effective manner is a challenge since human settlements are scattered and population density is low in much of non-coastal Orissa. This results in poor area coverage.
- Physical access to facilities in such a situation becomes difficult. In this connection, road and transport connectivity becomes crucial.
- In order to improve economic access, adequate availability of medicines, tonics, and vaccines is important.
- Quality of health care in the primary tier and the lowest rung of the secondary tier can have an important bearing on the credibility of the system.
- Health counselling becomes significant in areas with low literacy (especially amongst females) and poor physical access, .
- Institutional delivery is ideal but if it is not possible, home delivery and neonatal care could be provided through trained ANMs.
- On the demand side, the rate of utilisation of public health facilities in Orissa is at present quite low.
- Female literacy is the single most important factor that determines health-seeking behaviour.
- At the district level, there is a fairly close negative correspondence between female literacy and the percentage of women married below 18 years of age (correlation coefficient: -0.79). This is also true for female literacy and the percentage of safe deliveries, i.e., those attended by trained professionals, the two being positively associated (correlation coefficient: 0.80).
- We have already pointed out some proximate factors which may explain a high infant mortality rate (IMR) in the case of Orissa. But it is the

mother's education that makes a significant difference to IMR, as is brought out clearly by the National Family Health Survey -1.

For the state as a whole, there is not much difference in enrolment and dropout rates between boys and girls at both primary and upper primary stages. The enrolment rates in the 6–14 years age group for girls belonging to Scheduled Castes, Scheduled Tribes, and general population are also not vastly different from each other. However, though the inter-district disparity in female literacy has come down between 1991 and 2001, it is still high and remains a matter of concern. For example, in 2001, as against a female literacy rate of about 51 per cent for the state as a whole, there were as many as seven districts having a female literacy rate of less than 30 per cent, with six of them being in the KBK region. Female illiteracy can be taken as a robust indicator of social and economic backwardness.

Thus, it is possible to identify two thrust areas for human development in the state: a broad-based and regionally balanced growth strategy, led by the agricultural sector and the promotion of literacy, with special emphasis on female literacy. Region-specific strategies are required to achieve positive results in both areas. These two basic requirements, taken together, will increase the demand for human capital, primary education, and primary health care..

However, the most severe challenge to sustainable development in the state is its vulnerability to recurrent natural disasters, in the form of drought conditions (in western and southern Orissa) and floods and cyclonic storms (different parts of coastal Orissa). Much has been written on this, and there have been interventions from different sections of civil society and the government, mostly in the form of relief, rescue, and rehabilitation measures.

The need for a micro insurance system based on the disaster risk factor and covering a cluster of villages has been suggested by some but has not been worked



out as yet. In the case of drought, however, crop insurance is only a short-term solution after the event has occurred and it is important to think of long-term measures against drought. These could include, *inter alia*, soil and water conservation measures, in a participatory mode, in all the watersheds. Massive afforestation and joint forest management, changes in the cropping patterns, and commercialisation of

the farm sector (for the better off farmers) would also be necessary for providing financial sustainability to the agricultural sector. For this there is need to explore feasibility of contract farming arrangements, besides acknowledging and giving legal status to share-cropping, which would improve the status of the landless agricultural labourers and make them credit worthy.





Annexures





Annexures

I Computation of Human Development Index (HDI)

I.1. Indicators

Similar to the UNDP's methodology, the HDI here is a simple summary measure of the average achievements in a district in respect of three basic dimensions of human development:

- Health attainment as measured, here, by Infant Mortality Rate (IMR), as the district level data on life expectancy at birth is not available.
- Educational attainment or knowledge measured by a combination of overall literacy rate (two-third weight) and combined gross enrolment ratio (6–14 years) (one-third weight).
- Standard of living as measured by District Domestic Product (DDP) per capita at 1993–94 prices, i.e. real DDP per capita.

I.2. Computation

To calculate these dimension indices—the health, education, and income indices—minimum and maximum values (goalposts or scaling norms) are chosen for each underlying indicator as given below.

Goalposts/Scaling Norms for HDI

Indicator	Minimum value	Maximum value
IMR (1999)	14	170
Overall Literacy Rate (per cent)	0	100
Combined Gross Enrolment Ratio (6–14 years) (per cent)	0	100
DDP per capita/ Per capita Income (in Rs at 1993–94 prices)	750	26,718

The basis of chosen values for the income and health parameters for HDI [as well as the Gender Development Index (GDI)] are as follows:

- The per capita income of Chandigarh is the highest (i.e. Rs 26,718 during 1998–99 at 1993–94 prices) among the states/union territories of India and hence is chosen as the maximum value of the income parameter.
- Kerala IMR is the lowest (14 during the year 1999) among the states/union territories of India and hence chosen as the minimum value for the health parameter.

However, the low attainment values (i.e. low per capita income and high IMR) could not be taken up from states/union territories figures as at least one district of Orissa has even lower attainment values compared to any state or union territories figures. Hence the goalpost for low attainment values are chosen by considering the district level figures.

- Estimated earned income for females in Bhadrak is the lowest (i.e. Rs 784) among the districts of Orissa. Therefore, Rs 750 is taken as the minimum value for the income parameter, so that Bhadrak's income attainment index is not equal to zero.
- Kandhamal IMR is the highest (i.e. 169) among the districts of Orissa. Therefore, 170 is taken as the maximum value for the health parameter, so that Kandhamal's health attainment index is not equal to zero.

In order to make individual indices dimension free, a dimension index is constructed as follow:

$$\text{Dimension index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

[Note: In order to make the health index unidirectional, we have taken the difference between the maximum and the actual value in the numerator.]

The HDI is then calculated as a simple average of health index, educational attainment index, and income index, i.e. the HDI is derived by dividing the sum of these three indices by three.

I.3. Illustration of the HDI Methodology

The calculation procedure is illustrated in the case of Mayurbhanj district of Orissa below.

District	IMR	Overall literacy rate (per cent)	Combined gross enrolment ratio (6–14 years) (per cent)	Real GDP per capita (Rs)
Mayurbhanj	48	52.43	89.20	4297

1. Health Index = $(170 - 48)/(170 - 14) = 0.782$.
2. Education Index:
 - (a) Overall Literacy Index = $(52.43 - 0)/(100 - 0) = 0.524$.
 - (b) Combined Gross Enrolment Ratio Index = $(89.2 - 0)/(100 - 0) = 0.892$.

Therefore,

$$\begin{aligned} \text{Education Index} &= \frac{2}{3}(\text{Overall Literacy Index}) + \frac{1}{3}(\text{Combined Gross Enrolment Ratio Index}) \\ &= \frac{2}{3}(0.524) + \frac{1}{3}(0.892) \\ &= 0.647. \end{aligned}$$

3. Income Index = $[\log(4297) - \log(750)]/[\log(26718) - \log(750)] = 0.489$

$$\begin{aligned} \text{Finally, the HDI} &= \frac{1}{3}(\text{Health Index}) + \frac{1}{3}(\text{Education Index}) + \frac{1}{3}(\text{Income Index}) \\ &= \frac{1}{3}(0.782) + \frac{1}{3}(0.647) + \frac{1}{3}(0.489) \\ &= 0.639. \end{aligned}$$



II Computation of Gender Development Index (GDI)

II.1. Indicators

While the HDI measures average achievement, the GDI adjusts the average achievement to reflect the inequalities between men and women in respect of the same dimensions as reflected in the HDI:

- Health attainment measured by IMR (for details on computation of district level IMR separately for male and female, see Annexure IV).
- Knowledge or educational attainment as measured by a combination of adult literacy (with two-thirds weight) and 10–14 years age group literacy rate (one-third weight).
- Standard of living as measured by estimated earned income (for details on this calculation, see Annexure V).

II.2. Computation

The calculation of GDI involves three steps.

STEP 1:

Female and male indices for each dimension (health, educational attainment, and income) are calculated with the same formula as used in HDI for which the goalposts or scaling norms are given below.

Goalposts/Scaling Norms for GDI

Indicator	Minimum value		Maximum value	
	Male	Female	Male	Female
Infant Mortality Rate (IMR)	14	14	170	170
Overall Literacy Rate (per cent)	0	0	100	100
Combined Gross Enrolment Ratio (6–14 years) (per cent)	0	0	100	100
Estimated Earned Income (in Rs at 1993–94 prices)	750	750	26,718	26,718

STEP 2:

The next step is to construct the equally distributed index (EDI), which penalises the differences in achievement between men and women for each dimension. The general formula for EDI is:

$$EDI = \{[\text{female population share (female index}^{1-\xi})] + [\text{male population share (male index}^{1-\xi})]\}^{1/1-\xi},$$

where ξ is the size of the penalty for gender inequality.

Similar to the UNDP'S methodology, in order to express a moderate aversion to inequality, the value 2 is used for ξ in EDI. Thus the EDI becomes

$$EDI = \{[\text{female population share (female index}^{-1})] + [\text{male population share (male index}^{-1})]\}^{-1}.$$

Thus the above expression becomes the harmonic mean of the female and male indices.

STEP 3:

In the final step, the GDI is calculated by combining the three EDIs as an unweighted average, i.e. the EDI for health, educational attainment, and income are added together and divided by three to derive the final GDI value.

II.3. Illustration of the GDI methodology

The calculation procedure is illustrated in the case of Keonjhar district of Orissa below.

District	IMR		Overall literacy rate (per cent)		Combined gross enrolment ratio (6–14 years) (per cent)		Estimated earned income (Rs)		Population share (per cent)	
	M	F	M	F	M	F	M	F	M	F
Keonjhar	116	117	72.53	46.71	91.67	91.79	7134	2920	50.58	49.42

- I. (A) Health Index (male) = $(170 - 116)/(170 - 14) = 0.346$.
Health index (female) = $(170 - 117)/(170 - 14) = 0.340$.
- (B) Overall Literacy Index (male) = $(72.53 - 0)/(100 - 0) = 0.725$.
Combined Gross Enrolment Ratio Index (male) = $(91.67 - 0)/(100 - 0) = 0.917$
Education Index (male) = $2/3 (0.725) + 1/3(0.917) = 0.789$.
Overall Literacy Index (female) = $(46.71 - 0)/(100 - 0) = 0.467$.
Combined Gross Enrolment Ratio Index (female) = $(91.79 - 0)/(100 - 0) = 0.918$.
Education Index (female) = $2/3 (0.467) + 1/3(0.918) = 0.617$.
- (C) Income Index (male) = $[\log (7134) - \log (750)]/[\log (26718) - \log (750)] = 0.630$.
Income Index (female) = $[\log (2920) - \log (750)]/[\log (26718) - \log (750)] = 0.380$.
- II. (A) Equally Distributed Health Index = $\{0.5058 (0.346)^{-1} + 0.4942 (0.340)^{-1}\}^{-1} = 0.343$.
(B) Equally Distributed Education Index = $\{0.5058 (0.789)^{-1} + 0.4942 (0.617)^{-1}\}^{-1} = 0.694$.
(C) Equally Distributed Income Index = $\{0.5058 (0.630)^{-1} + 0.4942 (0.380)^{-1}\}^{-1} = 0.476$.
- III. GDI = $1/3(\text{Equally Distributed Health Index}) + 1/3(\text{Equally Distributed Education Index}) + 1/3(\text{Equally Distributed Income Index})$
= $1/3(0.343) + 1/3(0.694) + 1/3(0.476)$
= 0.504.



III Computation of Reproductive Health Index (RHI)

III.1. Indicators

The RHI measures the reproductive health status of women in the districts of Orissa. It is a composite index constructed by taking into account six indicators representing different aspects of reproductive health based on the RCH Rapid Household Survey data at the district level. These indicators are:

- The proportion of high risk of early pregnancy as measured by the percentage of women marrying before 18 years
- Indicator of fertility burden as measured by the percentage of women with third or higher order birth
- Percentage of women reporting symptoms of reproductive tract infection
- Percentage of women reporting contraceptive side effects
- Percentage of women having pre-delivery and/or post-delivery complication
- Percentage of births unattended by trained professional.

III.2. Computation

The RHI is then constructed in three steps.

STEP 1:

Reproductive health burden index is constructed by using above the six variables as per the following formula:

$$B_{ij} = (X_{ij} - X_i^*) / (X_i^{**} - X_i^*), \text{ for } i = 1, 2, \dots, 6 \text{ (variables), and } j = 1, 2, 3, \dots, 30 \text{ (districts),}$$

where,

- B_{ij} is the reproductive health burden index for the j th district with respect to the i th indicator;
- X_i^{**} is the maximum norm for i th indicator;
- X_i^* is the minimum norm for i th indicator;
- X_{ij} is the actual value for the j th district with respect to the i th indicator.

The goalposts or scaling norms for the above six variables are given below:

Goalposts/Scaling Norms for RHI

Indicator	Minimum Value	Maximum Value
Married below the age of 18 years (per cent)	0	100
3 rd or higher order birth (per cent)	0	100
Reproductive tract infection (per cent)	0	100
Pre-delivery and/or post-delivery complication (per cent)	0	100
Contraceptive side effects (per cent)	0	100
No medical attention at birth (per cent)	0	100

Choosing the above goalposts for B_{ij} makes it unidirectional. As the actual value converges towards minimum value, the burden of the i th variable for the j th district goes down.

STEP 2:

The average reproductive health burden index (B_j) is constructed by taking a simple average of the six indicators, as follows:

$$B_j = \sum_{i=1}^6 B_{ij} / 6, j = 1, 2, \dots, 30.$$

STEP 3:

The RHI is measured as one minus the average reproductive health burden index:

$$(RHI)_j = (1 - B_j), j = 1, 2, \dots, 30.$$

III.3. Illustration of the RHI Methodology

The calculation procedure is illustrated in the case of Sundargarh district of Orissa below:

District	Married below the age of 18 years (per cent)	3 rd or higher order birth (per cent)	Reproductive tract infection (per cent)	Pre-delivery and/or post-delivery complications (per cent)	Contraceptive side effects (per cent)	Non-medical attention at birth (per cent)
Sundargarh	17	44	7.3	49.80	53.40	51.18

I. Burden of early marriage = $(17 - 0)/(100 - 0) = 0.17$.

Burden of higher order birth = $(44 - 0)/(100 - 0) = 0.44$.

Burden of reproductive tract infection = $(7.3 - 0)/(100 - 0) = 0.073$.

Burden of contraceptive side effects = $(53.40 - 0)/(100 - 0) = 0.534$.

Burden of pre-delivery and/or post-delivery complication(s) = $(49.80 - 0)/(100 - 0) = 0.498$.

Burden of non-medical attention at birth = $(51.18 - 0)/(100 - 0) = 0.512$.

II. Average reproductive health burden index = $(0.17 + 0.44 + 0.073 + 0.534 + 0.498 + 0.512)/6 = 0.371$.

Therefore, Sundargarh's Reproductive Health Index (RHI) = $1 - 0.371 = 0.629$.



IV Computation of District Level IMR Separately for Male and Female

Given (i) IMR (1991) of 13 undivided districts for males, females, and total for the state¹ and (ii) total IMR (1999) for 30 new districts, district level IMR separately for male and female are computed as below:

$$UDIMR_M(1999) = UDIMR_T(1999)/UDIMR_T(1991) * UDIMR_M(1991);$$

$$UDIMR_F(1999) = UDIMR_T(1999)/UDIMR_T(1991) * UDIMR_F(1991);$$

$$NDIMR_M(1999) = NDIMR_T(1999)/UDIMR_T(1999) * UDIMR_M(1999);$$

$$NDIMR_F(1999) = NDIMR_T(1999)/UDIMR_T(1999) * UDIMR_F(1999);$$

where UDIMR: Undivided District IMR;

NDIMR: New District IMR;

M, F, T: male, female, and total respectively.

State IMR (1999) estimates for total, male, and female separately are taken from the Sample Registration System.

To illustrate, take the case of undivided Balasore district and the newly carved out districts of Balasore

and Bhadrak from the mother district of undivided Balasore.

Then,

$$\begin{aligned} \text{Balasore } IMR_M(1999) &= \text{Balasore } IMR_T(1999)/ \\ &\text{Balasore } IMR_T(1991) * \text{Balasore } IMR_M(1991) = 10 \\ &1/151 * 115 = 77 \end{aligned}$$

and

$$\begin{aligned} \text{Balasore } IMR_F(1999) &= \text{Balasore } IMR_T(1999)/ \\ &\text{Balasore } IMR_T(1991) * \text{Balasore } IMR_F(1991) = 101/151 * 181 = 121. \end{aligned}$$

Similarly,

$$\begin{aligned} \text{Bhadrak } IMR_M(1999) &= \text{Bhadrak } IMR_T(1999)/ \\ &\text{Balasore } IMR_T(1999) * \text{Balasore } IMR_M(1999) \\ &= 65/101 * 77 = 50 \end{aligned}$$

and

$$\begin{aligned} \text{Bhadrak } IMR_F(1999) &= \text{Bhadrak } IMR_T(1999)/ \\ &\text{Balasore } IMR_T(1999) * \\ &\text{Balasore } IMR_F(1999) = 65/101 * 121 = 78. \end{aligned}$$

¹ S. Irudayarajan and P. Mohanchandran (1998), 'Infant and Child Mortality estimates—Part I', *Economic and Political Weekly*, Vol. XXXIII, No. 19, 9–15 May.

V Computation of Estimated Female and Male Earned Income

The income measure used in the GDI indicates a person's capacity to earn income. It is used in the GDI to capture the disparities between men and women in command over resources.

Female and male earned income are estimated using the following data:

- (i) Ratio of female non-agricultural wage to male non-agricultural wage (W_f/W_m): Since the data on this wage ratio is not available for the districts, a value of 75 per cent is used, i.e. $W_f/W_m = 0.75$.
- (ii) Female and male shares of economically active population: For this Census data on main and marginal workers is used.
- (iii) Total female and male population.
- (iv) Real district domestic product (DDP) per capita.

Similar to the methodology used by the UNDP, the calculation of the estimated earned income here involves two steps.

A. Female share of wage bill is calculated using the ratio of the female non-agricultural wage to male non-agricultural wage (W_f/W_m) and the female and male percentage shares of the economically active population (i.e. T_f and T_m which represents total (main and marginal) workers separately for males and females as percentage of total workforce).

Therefore, female share of wage bill (S_f) = $[(W_f/W_m)(T_f)] / \{[(W_f/W_m)(T_f)] + T_m\}$.

- B. On the assumption that female share of wage bill is equal to the female share of DDP,
 Estimated female earned income = S_f * (Total DDP/ Total female population)
 and
 Estimated male earned income = Total DDP (1- S_f)/ Total male population.

Computation of estimated female and male earned income is illustrated below for the same district as used for GDI, namely Keonjhar:

District	NDDP (Rs lakh)	Population (nos.)		Share of population engaged in economic activity (per cent)	
		Male	Female	Male	Female
Keonjhar	78,880	789,826	771,695	65.22	34.78

- A. Female share of wage bill = $S_f = (0.75 * 34.78) / [(0.75 * 34.78) + 65.22] = 0.286$.
- B. Estimated female earned income = $[0.286 * (78880 * 10^5)] / 771695 = \text{Rs } 2920$
 and
 Estimated male earned income = $[(1 - 0.286) * (78880 * 10^5)] / 789826 = \text{Rs } 7134$.



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Health Condition

Table 1¹
Physical Access to Health Facility: Rural Orissa

Balasore

Population Density: 444

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	16.78	34.20
0-5	46.94	37.61
5-10	29.96	22.83
10+	6.33	5.37
Total	100.00	100.00

Note: For one village (having population 93) the data for distance from the nearest health facility are not available.

Balangir

Population Density: 192

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	8.41	18.98
0-5	41.65	38.45
5-10	32.77	27.59
10+	17.17	14.98
Total	100.00	100.00

Note: For 10 villages (having population 993) the data for distance from the nearest health facility are not available.

¹ Data obtained from *Census of India (1991), Series-19, Orissa, Part XII-A, District Census Handbook, Villages and Town Directory*, Director of Census Operations, Orissa. Tabulations for Ganjam and Koraput districts could not be done as the *District Census Handbook (1991)* for these two districts yet to be published.



Cuttack

Population Density: 496

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	23.78	35.90
0-5	48.27	41.25
5-10	19.34	7.02
10+	8.61	0.04
Total	100.00	100.00

Note: For 11 villages (having population 1822) the data for distance from the nearest health facility are not available.

Dhenkanal

Population Density: 176

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	13.75	30.40
0-5	40.04	37.45
5-10	29.81	20.64
10+	16.39	11.51
Total	100.00	100.00

Kalahandi

Population Density: 136

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	6.44	19.08
0-5	30.46	34.27
5-10	30.87	26.87
10+	32.24	19.78
Total	100.00	100.00

Keonjhar

Population Density: 161

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	14.38	27.82
0-5	43.10	38.05
5-10	26.23	21.73
10+	16.28	12.40
Total	100.00	100.00

Note: For 16 villages (having population 3027) the data for distance from the nearest Health Facility are not available.

Mayurbhanj

Population Density: 181

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	7.40	15.87
0-5	44.17	42.86
5-10	26.23	21.73
10+	14.78	10.78
Total	100.00	100.00

Phulbani

Population Density: 78

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	6.43	22.30
0-5	34.91	33.96
5-10	26.53	21.42
10+	32.12	22.31
Total	100.00	100.00



Puri

Population Density: 353

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	14.10	29.60
0-5	48.33	42.35
5-10	27.68	21.87
10+	9.89	6.18
Total	100.00	100.00

Note: For 9 villages (having population 335) the data for distance from the nearest health facility are not available.

Sambalpur

Population Density: 154

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	21.29	39.35
0-5	34.83	29.92
5-10	22.01	17.42
10+	21.87	13.31
Total	100.00	100.00

Note: For 21 villages (having population 5887) the data for distance from the nearest health facility are not available.

Sundargarh

Population Density: 162

Distance from the nearest health facility (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	13.69	30.88
0-5	32.29	28.89
5-10	30.43	22.73
10+	23.59	17.51
Total	100.00	100.00

Table 2
Road Connectivity: Rural Orissa

Districts	Pucca Road		Kutcha Road		Population density
	Per cent distribution of villages	Per cent distribution of population	Per cent distribution of villages	Per cent distribution of population	
Balangir	13.69	22.02	84.43	77.06	192
Keonjhar	18.57	26.70	80.90	73.04	161
Dhenkanal	17.15	26.71	80.36	72.59	176
Sambalpur	19.99	30.09	78.53	69.55	154
Phulbani	18.88	30.27	78.32	68.77	78
Kalahandi	19.50	34.33	79.98	65.46	136
Sundargarh	25.57	38.18	72.87	61.31	162
Balasore	35.27	43.69	64.60	56.23	444
Puri	33.69	45.54	66.13	54.41	353
Mayurbhanj	19.08	25.26	79.65	73.64	181
Cuttack	35.57	44.02	63.73	55.40	496

Note: For Balangir 10 villages (having population 993), for Keonjhar 15 villages (having 2239 population), for Dhenkanal 2 villages (having 224 population), for Sambalpur 20 villages (having 5499 population), for Kalahandi 12 villages (having population 11,261), for Balasore 1 village (having 93 population), for Puri 6 villages (having 183 population), for Cuttack 10 villages (having 771 population), the data for mode of connectivity are not available.

Source: Data obtained from *Census of India (1991), Series -19, Orissa, Part XII-A, District Census Handbook, Village and Town Directory*, Director of Census Operations, Orissa. Tabulations for Ganjam and Koraput districts could not be done as the *District Census Handbook (1991)* for these two districts are yet to be published.

Table 3²
Transport Connectivity: Rural Orissa

Balangir

Population Density: 192

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	15.03	24.65
0-5	43.58	39.75
5-10	27.53	23.39
10+	13.86	12.20
Total	100.00	100.00

Note: For 6 villages (having population 3499) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

² Data obtained from *Census of India (1991), Series-19, Orissa, Part XII-A, District Census Handbook, Villages and Town Directory*, Director of Census Operations, Orissa. Tabulations for Ganjam and Koraput districts could not be done as the *District Census Handbook (1991)* for these two districts yet to be published.

Balasore

Population Density: 444

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	11.81	22.44
0-5	53.06	45.96
5-10	27.22	23.96
10+	7.90	7.63
Total	100.00	100.00

Note: For 1 village (having population 93) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Cuttack

Population Density: 496

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	17.84	26.94
0-5	44.73	39.35
5-10	23.18	21.17
10+	14.25	12.54
Total	100.00	100.00

Note: For 10 villages (having population 771) the data for distance from the nearest bus stop, railway station, and waterway are not available.

Dhenkanal

Population Density: 176

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	18.12	31.89
0-5	41.85	39.19
5-10	27.08	20.82
10+	12.95	8.09
Total	100.00	100.00

Note: For 2 villages (having population 224) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Kalahandi

Population Density: 136

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	13.84	27.79
0-5	32.35	34.62
5-10	20.76	20.07
10+	33.05	17.51
Total	100.00	100.00

Keonjhar

Population Density: 161

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	20.32	31.35
0-5	49.56	44.29
5-10	20.57	17.10
10+	9.55	7.26
Total	100.00	100.00

Note: For 15 villages (having population 2239) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Mayurbhanj

Population Density: 181

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	13.49	21.33
0-5	53.84	50.24
5-10	19.68	17.82
10+	13.00	10.61
Total	100.00	100.00



Phulbani

Population Density: 78

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	10.78	25.82
0-5	29.49	30.53
5-10	22.79	19.69
10+	36.95	23.96
Total	100.00	100.00

Note: For 5 villages (having population 708) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Puri

Population Density: 353

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	20.40	32.73
0-5	48.44	43.19
5-10	19.64	17.27
10+	11.53	6.81
Total	100.00	100.00

Note: For 8 villages (having population 310) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Sambalpur

Population Density: 154

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	23.41	35.02
0-5	40.09	37.19
5-10	22.31	19.80
10+	14.19	7.99
Total	100.00	100.00

Note: For 22 villages (having population 6089) the data for distance for the distance from the nearest bus stop, railway station, or waterway are not available.

Sundargarh

Population Density: 162

Distance from the nearest bus stop or railway station or waterway (in km)	Per cent distribution of villages	Per cent distribution of population
Within the Village	25.51	39.76
0-5	33.49	30.84
5-10	22.39	16.81
10+	18.61	12.58
Total	100.00	100.00



School Education

Table 4
**District-wise Projected Adult Literacy Rate (15+ Age Group) by
Residence and Sex in Orissa, 2001**

State/ Districts	Total/Rural /Urban	Adult Literacy Rate, 2001			Gender Disparity
		Total	Male	Female	
Orissa	T	52.83	67.46	37.67	0.7908
	R	48.42	63.91	32.74	0.9520
	U	77.08	85.27	67.74	0.2588
Sambalpur	T	53.29	69.42	36.36	0.9092
	R	48.34	66.38	31.16	1.1303
	U	75.17	81.70	60.74	0.3451
Sundargarh	T	59.66	72.55	45.93	0.5796
	R	44.44	61.63	31.25	0.9722
	U	84.99	88.39	73.12	0.2088
Keonjhar	T	47.44	62.62	31.68	0.9766
	R	43.92	59.66	27.91	1.1376
	U	69.93	80.10	58.30	0.3739
Mayurbhanj	T	40.51	56.26	25.11	1.2405
	R	37.72	53.88	22.02	1.4469
	U	76.82	84.72	68.04	0.2451
Balasore	T	63.39	77.47	48.99	0.5813
	R	62.39	76.97	47.57	0.6180
	U	71.78	81.50	61.55	0.3241
Cuttack	T	68.91	80.90	56.43	0.4336
	R	69.07	79.47	60.68	0.3097
	U	81.21	87.74	73.78	0.1892
Dhenkanal	T	57.01	72.40	38.58	0.8766
	R	53.51	69.83	34.44	1.0276
	U	83.73	90.53	76.67	0.1808
Boudh	T	39.57	60.27	19.08	2.1588
	R	36.93	57.98	16.25	2.5680
	U	77.24	90.51	62.96	0.4376
Balangir	T	42.78	62.80	22.25	1.8225
	R	39.50	60.12	18.61	2.2305
	U	72.00	85.25	56.92	0.4977
Kalahandi	T	32.34	49.87	14.58	2.4204
	R	29.97	47.73	12.13	2.9349
	U	64.79	76.83	50.80	0.5124
Koraput	T	22.59	33.05	12.29	1.6892
	R	16.77	26.78	7.00	2.8257
	U	68.03	80.17	55.35	0.4484
Ganjam	T	46.17	63.65	28.54	1.2302
	R	41.05	59.57	22.59	1.6370
	U	72.53	83.97	60.58	0.3861
Puri	T	69.07	81.27	55.62	0.4612
	R	64.26	79.07	48.94	0.6157
	U	81.65	85.26	77.15	0.1051

Note: Calculated on the basis of adult literates and adult population (15+ age-group) of 1981 and 1991 Census.

Source: Office of the Census of India, Orissa, Bhubaneswar.

Table 5
Educational Levels of the Population in Orissa, 1998–99

	Male	Female
Illiterate	24.0	48.7
Literate, less than primary	24.8	20.4
Primary	20.8	15.8
Middle	13.2	7.8
High School	8.5	4.1
Higher Secondary and above	8.6	3.2
Total	100.0	100.0

Note: This table is being used to draw inferences regarding male–female differentials and the absolute percentages are not to be relied upon.
 Source: International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa*, IIPS, Mumbai.



Table 6
Enrolment in School Education in Orissa

(in lakhs)

Year	Primary	Middle	Secondary
1947-48	2.55	0.32	0.15
1950-51	3.15	0.40	0.16
1960-61	14.29	1.07	0.44
1970-71	18.96	3.21	1.77
1980-81	27.50	5.85	3.20
1981-82	28.23	6.25	3.53
1982-83	30.06	6.79	3.58
1983-84	30.41	7.05	3.64
1984-85	32.09	7.83	3.89
1985-86	32.54	7.94	4.03
1986-87	33.60	8.72	4.08
1987-88	33.88	9.03	7.28
1988-89	35.02	9.70	7.66
1989-90	35.55	9.88	7.70
1990-91	36.11	10.05	7.74
1991-92	36.54	10.53	7.79
1992-93	37.06	10.95	7.93
1993-94	37.65	11.48	7.98
1994-95	38.15	11.89	8.17
1995-96	38.87	12.70	8.23
1996-97	39.45	9.09	8.66
1997-98	40.05	9.59	8.81
1998-99	40.37	9.70	10.31
1999-2000	46.46	10.15	11.51
2000-01	47.10	10.35	11.58
2001-02	47.69	9.46	11.86
2002-03	46.44	9.53	12.45
2003-04	49.18	49.18	12.88 (P)
Compound Annual Growth Rate (CAGR)			
1980-81 to 1990-91	2.71	5.86	9.76
1991-92 to 2003-04	2.78	-1.74	4.13

P: Provisional

Source: (i) Directorate of Elementary Education, Government of Orissa, Bhubaneswar.
(ii) Directorate of Mass Education, Government of Orissa, Bhubaneswar.

Table 7
Rate of Repetition in Primary Schools in Selected DPEP Districts

(in per cent)

Districts	1998–99			1999–2000			2000–01		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Balangir	12	14	13	11	12	12	12	13	13
Dhenkanal	1	1	1	8	8	8	11	11	11
Gajapati	0	0	0	4	5	5	5	6	6
Kalahandi	13	17	15	18	22	20	22	26	24
Rayagada	1	2	1	5	5	5	6	6	6
Bargarh	5	5	5	4	4	4	8	7	8
Keonjhar	0	0	0	15	16	16	20	21	21
Sambalpur	3	3	3	10	9	9	12	11	12

Source: Office of DPEP, Bhubaneswar.

Table 8
Out-turn (Annual + Supplementary Examination) of Class X Students, 1998–2002

Students status	Year				
	1998	1999	2000	2001	2002
Annual					
Enrolled	269,896	271,576	276,194	265,983	249,043
Appeared	268,456	270,069	273,745	263,617	246,803
Total Pass	138,927	146,551	108,749	100,157	100,528
Pass Percentage	52.14	54.64	40.04	38.38	41.01
Supplementary					
Enrolled	74,210	64,505	64,376	58,677	NA
Appeared	71,976	62,128	61,423	55,544	NA
Total Pass	32,830	21,300	18,496	14,515	NA
Pass Percentage	46.24	34.84	30.53	26.71	NA
Overall (Annual + Supplementary)					
Total Pass	171,757	167,851	127,245	114,672	-
Pass Percentage	50.9	50.96	38.30	36.37	-

NA: Not Available.

Source: Board of Secondary Education, Orissa, Cuttack.



Table 9

Out-turn (Annual + Supplementary Examination) of Different Categories of Higher Secondary Students (Class XII), 1998–2002

Students status/Type of course	Year				
	1998	1999	2000	2001	2002
CHSE					
Arts					
Enrolled	152,479	164,175	175,360	152,218	129,576
Appeared	148,271	160,326	170,344	147,968	124,205
Total Pass	83,512	61,697	66,041	44,053	66,043
Pass Percentage	56.39	47.69	44.15	33.31	57.71
Commerce					
Enrolled	13,189	15,128	16,075	14,702	13,464
Appeared	12,887	14,817	15,720	14,412	13,134
Total Pass	7809	7197	7172	6469	7771
Pass Percentage	60.93	52.31	48.55	48.06	61.88
Science					
Enrolled	43,289	43,691	51,586	53,078	54,024
Appeared	42,248	42,873	50,434	52,136	52,565
Total Pass	27,602	23,548	24,632	20,013	27,106
Pass Percentage	75.84	62.79	52.75	44.66	54.33
Total (CHSE)					
Enrolled	208,957	222,994	243,021	219,998	197,064
Appeared	203,406	218,016	236,498	214,516	189,904
Total Pass	118,923	92,442	97,845	70,535	100,920
Pass Percentage	65.71	51.17	46.37	36.99	57.05
CBSE					
Enrolled	N A	2327	2201	2719	2860
Appeared	N A	2310	2192	2680	2831
Total Pass	N A	1891	1772	2141	2244
Pass Percentage	N A	81.86	80.84	79.89	79.27
ICSE					
Enrolled	22,195	25,040	28,389	23,148	34,619
Appeared	21,901	24,686	27,965	31,592	34,095
Total Pass	20,887	23,388	26,236	30,062	32,258
Pass Percentage	94.11	93.40	92.42	93.51	93.18

Source: Council of Higher Secondary Education (CHSE), Orissa, Bhubaneswar; and Department of Higher Education, Government of Orissa.

Table 10

Total Number of Schools and Student Enrolment in Schools of ST & SC Development Department (Both Scheduled and Non-Scheduled Areas)

Sl. No.	Category of schools	No. of schools	Students enrolled									
			1999–2000		2000–01		2001–02		2002–03		2003–04	
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1.	High Schools	218	35,690	16,201 (0.45)	36,509	17,220 (0.47)	36,441	17,860 (0.49)	36,735	19,158 (0.52)	37,393	18,670 (0.50)
2.	Ashram/ Kanyashram Schools	149	16,818	8,696 (0.51)	16,983	9340 (0.55)	17,823	9383 (0.53)	17,712	10,107 (0.57)	18,177	10,866 (0.60)
3.	Residential Sevashram Schools (Primary)	143	17,477	4930 (0.28)	18,284	4999 (0.27)	18,595	5372 (0.29)	19,077	7696 (0.40)	21,701	8294 (0.38)
4.	Non-residential Sevashram Schools (Primary)	1031*	72,326	49,576 (0.69)	66,367	48,419 (0.73)	66,450	53,471 (0.80)	65,780	56,246 (0.86)	62,408	58,593 (0.94)
5.	All Categories	1541*	142,311	79,403 (0.56)	138,143	79,978 (0.58)	139,309	86,086 (0.62)	139,340	93,207 (0.67)	139,679	96,423 (0.69)

Note: Figures in parentheses indicate Gender Parity Index, i.e. ratio of number of girls to number of boys enrolled in schools.

*Total number of Non-residential Sevashram Schools functioning during 2003–04 is 1031. However, enrolment information is available only from 919 schools.

Source: ST & SC Development Department, Government of Orissa, Bhubaneswar.

Table 11

Types of High Schools in Orissa, by Management, 1993

Management	Types of High Schools		
	Co-education	Girls	Total
Government	1055	184	1239
	(85.15)	(14.85)	(100.00)
Local bodies	140	23	163
	(85.89)	(14.11)	(100.00)
Private aided	2443	256	2699
	(90.52)	(9.48)	(100.00)
Private unaided	1099	110	1209
	(90.90)	(9.10)	(100.00)
Total	4737	573	5310
	(89.21)	(10.79)	(100.00)

Note: Figures in parentheses indicate percentages.

Source: Government of Orissa (2000), *Report of the Sixth All India Educational Survey*, Orissa 1993, Directorate of Elementary Education, Bhubaneswar.



Table 12
**Enrolment in Elementary Education in Orissa,
 by Management, 2003–04**

(in per cent)

	Primary	Upper Primary	High School
Management	2003–04*	2003–04*	1993**
Government	95.79	86.67	28.20
Local Body	1.03	2.47	3.52
Private Aided	0.94	3.83	50.80
Private Unaided	1.65	6.40	17.48
Others	0.59	0.62	0.00
Total	100.00	100.00	100.00

Source: * District Information System for Education, Orissa Primary Education Programme Authority, Bhubaneswar.
 ** Government of Orissa (2000), *Report of the Sixth All India Educational Survey*, Orissa 1993, Directorate of Elementary Education, Bhubaneswar.

Table 13
**Students Enrolled, Appeared, and Passed in the Vocational
 Examinations Conducted by CHSE, Orissa, 1990–2001**

Year of examination	No. of students enrolled	No. of examination centres	No. of students appeared	No. of students passed	Percentage of Pass
1990	997	28	994	679	68.3
1991	1416	31	1397	720	51.5
1992	4037	120	4009	2920	72.3
1993	1766	38	1766	1242	70.3
1995	1532	29	1405	638	45.4
1996	2637	26	1359	123	20.0
1997	1916	25	1611	556	34.5
1998	1454	23	1370	601	43.8
1999	1055	14	1099	345	31.5
2000	1062	16	743	312	46.4
2001	631	13	587	275	50.0
Total	18,503	363	16,340	8411	51.5

Source: Council of Higher Secondary Education, Orissa, *Annual Report, 2001–02*, Bhubaneswar.

Table 14

Existing Courses/Trades, Number of Students, and their Employment Status

Sl. No.	Courses/Trades offered	Number of Students			Employment status of students who passed		
		Enrolled	Appeared in examinations	Passed	Self-employed	Job employed	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Motor Training/ Winding/Binding/ Repairing of Electrical Motors	337	189	107	4	9	13 (12.1)
2	Automobile Engineering	580	443	355	33	19	52 (14.6)
3	Insurance	597	396	146	4	-	4 (2.7)
4	Creche and Pre- school Management	859	608	316	10	2	12 (3.8)
5	Maintenance and Repair of Electrical Domestic Appliances	1762	1065	603	72	13	85 (14.1)
6	Radio & TV	3416	1903	826	114	11	125 (15.1)
7	Inland Fishing	1065	900	476	10	2	12 (2.5)
8	Library Science	160	130	87	-	-	-
9	Tax Assistant	172	168	56	-	-	-
10	Medical Laboratory Technician	289	137	37	-	-	-
11	X-Ray Technician	91	48	24	-	-	-
12	Horticulture	2382	1988	930	77	6	83 (8.9)
13	Plant Protection	171	136	111	12	-	12 (10.8)
14	Commercial Garment Making/Designing	121	109	84	18	-	18 (21.4)
15	Stenography	639	527	426	24	6	30 (7.04)
16	Office Management	1325	710	295	26	19	45 (15.2)
17	Auditing and Accountancy	81	53	35	2	-	2 (5.7)

Table 14 contd.



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
18	Pou ltry Farming	441	260	172	13	2	15 (8.7)
19	Agriculture and Crop Production	382	411	200	13	-	13 (6.5)
20	Dairying	2237	1764	1013	23	1	24 (2.4)
21	Agriculture Chemicals/ Agriculture Bio-chemicals	203	180	137	12	1	12 (8.7)
22	Mechanical Engineering	72	50	29	10	7	17
23	Computer Education	38	-	-	-	-	-
24	Food Preservation and Processing	111	84	52	-	-	-
25	Farm Mechanics	181	154	124	-	-	-
26	Seed Production	172	134	1091	-	-	-
27	Sericulture	339	249	124	8	2	10 (8.9)
28	Medical Aromatic Firm	64	60	28	-	-	-
29	Rural Energy Management	90	81	62	3	2	5
	Total	18,377	12,937	6964	488	101	589 (8.4)

Note: Figures in parentheses indicate percentage of students employed to the number of students passed out.

Source: The figures in this table are based on the information of the principals of Government Higher Secondary Vocational Schools collected during the field study. But the data of the Office of Council of Higher Secondary Education, Orissa presented in Annex Table 13 reveal higher figures for enrolment, appearance, and pass outs. This discrepancy could be attributed to inadequate information available with the schools.

Table 15

**Special Learning Centres in the NCLP Districts:
Target and Achievement till December 2001**

Sl. No.	Name of the NCLP district	Special learning centres sanctioned	Special learning centres opened	Child labour admitted	Child labour mainstreamed to formal Schools	Per cent of Col. (6) to Col. (5)
1	2	3	4	5	6	7
1	Angul	20	20	1745	375	21.49
2	Balasore	40	40	2000	0	0.00
3	Bargarh	40	40	2000	500	25.00
4	Balangir	40	40	2000	1025	51.25
5	Cuttack	40	40	2000	0	0.00
6	Deogarh	40	40	2000	1069	53.45
7	Gajapati	58	60	3429	1003	29.25
8	Ganjam	36	33	1962	1362	69.42
9	Jharsuguda	55	49	2450	375	15.31
10	Kalahandi	50	50	2500	1535	61.40
11	Koraput	20	20	1000	1092	109.20
12	Malkangiri	60	40	2000	2000	100.00
13	Nabarangpur	20	20	2000	1663	83.15
14	Nuapada	20	20	1000	1060	106.00
15	Mayurbhanj	40	40	2000	1063	53.15
16	Rayagada	20	20	1998	1775	88.84
17	Sambalpur	70	70	3500	2695	77.00
18	Sonepur	40	40	1932	922	47.72
	Total	709	682	37,516	19,514	52.02

Source: Government of Orissa (2002), *Labour Statistics in Orissa*, The Labour Commissioner, Bhubaneswar.



Table 16
**Percentage of Revenue Expenditure on Education,
 1990–91 to 2000–01**

Year	Total revenue expenditure on education (crore Rs)	Total revenue expenditure (crore Rs)	Per cent of revenue expenditure on education to total revenue expenditure
1990–91	441.88	2190.43	20.17
1991–92	535.01	2635.02	20.30
1992–93	606.31	3048.88	19.89
1993–94	674.65	3479.37	19.39
1994–95	799.12	4035.52	19.80
1995–96	926.33	4697.82	19.72
1996–97	1052.80	5177.25	20.34
1997–98	1193.01	5535.17	21.55
1998–99	1459.22	6816.90	21.41
1999–2000	1906.27	8458.83	22.54
2000–01	1717.00	8833.99	19.44

Source: Government of Orissa, *Finance Accounts*, Finance Department, Bhubaneswar, various years.

Table 17
**Proportion of Students of the Age-Group 5–24 Years
 Receiving Free Education or Exemption from Fees in Orissa, 1995–96**

Item	Rural			Urban			Total
	Male	Female	Total	Male	Female	Total	
Primary							
Free education	97.4	97.6	97.5	79.6	76.1	77.9	94.9
Tuition fee exemption Fully/partly	–	–	–	–	–	–	–
Upper Primary							
Free education	90.3	86.3	88.8	78	88.1	83.1	87.8
Tuition fee exemption							
Fully	0.1	1.5	0.6	–	–	–	0.5
Partly	–	–	–	–	–	–	–
Secondary and Higher Secondary							
Free education	58.3	65.4	60.4	63.6		64	61.2
Tuition fee exemption							
Fully	0.9	0.02	0.7	2.9	1.9	2.4	1
Partly	0.4	–	0.3	1.7	2.9	2.2	0.7

Source: Government of India (1996), *Report on Participation in Education, 52nd Round, 1995–96*, National Sample Survey Organisation (NSSO), Ministry of Statistics, Planning, and Programme Implementation, New Delhi.

Table 18

Proportion of Students of Age Group 5–24 Years Receiving Subsidies in Education in Orissa, 1995–96

Item	Rural			Urban			Total
	Male	Female	Total	Male	Female	Total	
Scholarship	6.6	3.9	5.5	3.9	6.9	5.3	5.5
Free or subsidised							
Books	12.8	11.5	12.3	3.2	6.2	4.6	11
Stationery	3.3	3.5	3.4	0.9	0.4	0.6	2.9
Mid-day meals							
By government	49.1	59.2	53.2	0.2	27.9	26.8	48.7
Other	0.1	0.1	0.1		0	0.2	0.1
All	49.2	59.3	53.3	0.2	27.9	27.1	48.9

Source: Government of India (1996), *Report on Participation in Education, 52nd Round, 1995–96*, National Sample Survey Organisation (NSSO), Ministry of Statistics, Planning, and Programme Implementation, New Delhi.



The Gender Question

Table 19
**Population in the Age-group 0-6, Number of Literates,
 and Literacy Rate for Orissa and Districts, 2001**

Sl. No.	State/District	Total population			Population in age group 0-6			Number of literate*			Literacy rate #		
		Persons (3)	Males (4)	Females (5)	Persons (6)	Males (7)	Females (8)	Persons (9)	Males (10)	Females (11)	Persons (12)	Males (13)	Females (14)
1.	Orissa	36,706,920	18,612,340	18,094,580	5,180,551	2,656,046	2,524,505	20,053,785	12,118,256	7,935,529	63.61	75.95	50.97
2.	Bargarh	1,345,601	681,012	664,589	167,861	85,915	81,946	755,245	463,767	291,478	64.13	77.93	50.03
3.	Jharsuguda	509,056	261,555	247,501	64,229	32,936	31,293	317,920	189,856	128,064	71.47	83.04	59.23
4.	Sambalpur	928,889	471,555	457,334	117,953	60,085	57,868	543,377	324,515	218,862	67.01	78.87	54.79
5.	Deogarh	274,095	138,425	135,670	41,496	21,151	20,345	141,384	86,535	54,849	60.78	73.79	47.56
6.	Sundargarh	1,829,412	934,902	894,510	255,989	129,709	126,280	1,026,220	609,440	416,780	65.22	75.69	54.25
7.	Keonjhar	1,561,521	789,826	771,695	237,224	120,870	116,354	791,306	485,224	306,082	59.75	72.53	46.71
8.	Mayurbhanj	2,221,782	1,121,982	1,099,800	355,281	181,818	173,463	978,652	624,088	354,564	52.43	66.38	38.28
9.	Balasore	2,023,056	1,037,938	985,118	285,080	147,376	137,704	1,232,838	728,008	504,830	70.94	81.75	59.57
10.	Bhadrak	1,332,249	675,162	657,087	184,336	95,040	89,296	856,852	495,639	361,213	74.64	85.44	63.62
11.	Kendrapara	1,301,856	646,356	655,500	170,005	87,848	82,157	875,212	489,382	385,830	77.33	87.62	67.29
12.	Jagatsinghpur	1,056,556	538,542	518,014	119,102	62,125	56,977	746,275	423,840	322,435	79.61	88.96	69.94
13.	Cuttack	2,340,686	1,207,569	1,133,117	273,665	140,976	132,689	1,573,646	911,467	662,179	76.13	85.46	66.19
14.	Jajpur	1,622,868	822,638	800,230	209,370	108,362	101,008	1,020,337	590,647	429,690	72.19	82.69	61.45
15.	Dhenkanal	1,065,983	543,439	522,544	141,053	73,516	67,537	648,511	382,100	266,411	70.11	81.31	58.55
16.	Angul	1,139,341	586,903	552,438	158,529	81,979	76,550	680,718	414,163	266,555	69.40	82.02	56.01
17.	Nayagarh	863,934	445,658	418,276	110,112	57,938	52,174	535,385	322,686	212,699	71.02	83.23	58.10
18.	Khurda	1,874,405	986,003	888,402	222,141	115,686	106,455	1,324,892	769,202	555,690	80.19	88.38	71.06
19.	Puri	1,498,604	761,397	737,207	181,751	94,615	87,136	1,032,352	591,627	440,725	78.40	88.73	67.80
20.	Ganjam	3,136,937	1,568,568	1,568,369	468,557	242,971	225,586	1,679,600	1,032,075	640,525	62.94	78.39	47.70
21.	Gajapati	518,448	255,288	263,160	89,752	45,731	44,021	178,891	115,547	63,344	41.73	55.14	28.91
22.	Kandhamala	647,912	322,674	325,238	114,838	58,211	56,627	282,269	185,072	97,197	52.95	69.98	36.19
23.	Boudh	373,038	187,947	185,091	59,075	30,103	28,972	183,434	121,325	62,109	58.43	76.86	39.78
24.	Sonepur	540,659	275,045	265,614	74,308	37,887	36,421	298,813	190,443	108,370	64.07	80.30	47.28
25.	Balangir	1,335,760	673,727	662,033	187,929	95,519	92,410	630,542	406,836	223,706	54.93	70.36	39.27
26.	Nuapada	530,524	264,490	266,034	82,369	41,811	40,558	189,539	130,900	58,639	42.29	58.78	26.01
27.	Kalahandi	1,334,372	667,126	667,246	211,191	106,150	105,041	518,951	352,745	166,206	46.20	62.88	29.56
28.	Rayagada	823,019	405,631	417,388	140,435	70,822	69,613	243,100	158,543	84,557	35.61	47.35	24.31
29.	Nabarangpur	1,018,171	511,004	507,167	180,346	90,061	90,285	287,021	199,402	87,619	34.26	47.37	21.02
30.	Koraput	1,177,954	589,438	588,516	193,317	96,991	96,326	356,421	234,292	122,129	36.20	47.58	24.81
31.	Malkangiri	480,232	240,540	239,692	83,257	41,844	41,413	124,082	81,890	42,192	31.26	41.21	21.28

Note: (i) *Literate exclude children in the age group 0-6 years who were by definition treated as illiterate in the of India 2001.

(ii) # Literacy rate is the percentage of literate to population aged 7 years and above.

Source: Government of India (2001), *Census of India: Provisional Population Totals, Series-22: Orissa, Directorate of Census Operations, Orissa*

Table 20
**Sterilisation Measures by Acceptors in Orissa,
 1990–91 to 1999–2000**

Year	Sterilisation		
	Vasectomy (No.)	Tubectomy (No.)	Total No.
1990–91	13,355 (9.21)	131,576 (90.79)	144,931 (100.00)
1991–92	7257 (5.29)	130,042 (94.71)	137,299 (100.00)
1992–93	5163 (4.05)	122,445 (95.95)	127,608 (100.00)
1993–94	4229 (3.25)	125,809 (96.75)	130,038 (100.00)
1994–95	3986 (2.46)	158,099 (97.54)	162,085 (100.00)
1995–96	3525 (2.37)	145,134 (97.63)	148,659 (100.00)
1996–97	2531 (1.88)	132,287 (98.12)	134,818 (100.00)
1997–98	2063 (1.62)	124,983 (98.38)	127,046 (100.00)
1998–99	3034 (2.46)	120,057 (97.54)	123,091 (100.00)
1999–2000	1572 (1.43)	108,441 (98.57)	110,013 (100.00)
Total	46,713 (3.47)	1,298,873 (96.53)	1,345,586 (100.00)

Note: Tubectomy for women and vasectomy for men. Figures in parentheses indicate percentages to total.

Source: Official Correspondence, Directorate of Family Welfare, Orissa, Bhubaneswar

Table 21
District-wise Family Planning Achievements, 1998–99

Sl. No.	District	Sterilisation			IUD insertion	Conventional contraceptive users	Oral pill users	Total no. of family planning acceptors during the year
		Vasectomy	Tubectomy	Total				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Balasore	4 (0.06)	6611 (99.94)	6615 (15.88)	10,916 (26.21)	17,922 (43.03)	6196 (14.88)	41649 (100.00)
2	Bhadrak	12 (0.26)	4582 (99.74)	4594 (16.67)	9879 (35.84)	9060 (32.87)	4030 (14.62)	27,563 (100.00)
3	Balangir	4 (0.07)	5766 (99.93)	5770 (19.04)	8233 (27.17)	12,523 (41.33)	3773 (12.45)	30,299 (100.00)
4	Sonepur	13 (0.69)	1874 (99.31)	1887 (17.75)	2013 (18.94)	5115 (48.12)	1615 (15.19)	10,630 (100.00)
5	Cuttack	53 (0.63)	8405 (99.37)	8458 (17.63)	11,942 (24.89)	20,310 (42.33)	7271 (15.15)	47,981 (100.00)
6	Jagatsinghpur	13 (0.37)	3505 (99.63)	3518 (12.30)	8725 (30.50)	12,231 (42.76)	4132 (14.44)	28,606 (100.00)
7	Jajpur	62 (1.17)	5251 (98.83)	5313 (22.89)	7391 (31.84)	7322 (31.54)	3188 (13.73)	23,214 (100.00)
8	Kendrapara	49 (1.44)	3363 (98.56)	3412 (13.79)	7741 (31.29)	10,182 (41.16)	3403 (13.76)	24,738 (100.00)
9	Dhenkanal	21 (0.60)	3472 (99.40)	3493 (10.77)	11,246 (34.69)	12,282 (37.89)	5397 (16.65)	32,418 (100.00)
10	Angul	41 (1.14)	3571 (98.86)	3612 (10.04)	12,539 (34.85)	14,453 (40.17)	5378 (14.95)	35,982 (100.00)
11	Ganjam	72 (0.75)	9548 (99.25)	9620 (17.15)	18,681 (33.30)	19,762 (35.23)	8033 (14.32)	56,096 (100.00)
12	Gajapati	158 (7.69)	1897 (92.31)	2055 (16.67)	3048 (24.72)	5693 (46.17)	1534 (12.44)	12,330 (100.00)
13	Kalahandi	87 (1.91)	4479 (98.09)	4566 (23.14)	4668 (23.66)	7695 (39.00)	2801 (14.20)	19,730 (100.00)
14	Nuapada	4 (0.16)	2447 (99.84)	2451 (20.20)	2357 (19.43)	5672 (46.76)	1651 (13.61)	12,131 (100.00)
15	Keonjhar	13 (0.27)	4797 (99.73)	4810 (14.00)	8715 (25.36)	15,184 (44.18)	5658 (16.46)	34,367 (100.00)
16	Koraput	677 (17.59)	3171 (82.41)	3848 (12.55)	6900 (22.50)	14,067 (45.88)	5848 (19.07)	30,663 (100.00)
17	Malkangiri	135 (6.12)	2070 (93.88)	2205 (20.82)	1733 (16.37)	5013 (47.34)	1638 (15.47)	10,589 (100.00)
18	Rayagada	647 (24.79)	1963 (75.21)	2610 (16.51)	4037 (25.54)	6916 (43.76)	2243 (14.19)	15,806 (100.00)
19	Nabarangpur	502 (13.16)	3312 (86.84)	3814 (19.89)	4731 (24.67)	8277 (43.16)	2356 (12.28)	19,178 (100.00)
20	Mayurbhanj	26 (0.31)	8308 (99.69)	8334 (21.39)	10,052 (25.80)	16,496 (42.34)	4079 (10.47)	38,961 (100.00)

Table 21 contd.

Table 21 contd.

21	Kandhamal	97 (5.92)	1542 (94.08)	1639 (10.03)	3771 (23.07)	8444 (51.65)	2493 (15.25)	16,347 (100.00)
22	Boudh	29 (3.31)	846 (96.69)	875 (9.40)	3162 (33.98)	4146 (44.56)	1122 (12.06)	9305 (100.00)
23	Puri	3 (0.05)	5857 (99.96)	5860 (30.99)	6477 (34.25)	5178 (27.38)	1397 (7.39)	18,912 (100.00)
24	Khurda	104 (1.74)	5883 (98.26)	5987 (15.01)	10,766 (26.99)	17,100 (42.86)	6041 (15.14)	39,894 (100.00)
25	Nayagarh	15 (0.45)	3284 (99.55)	3299 (21.09)	4249 (27.16)	5593 (35.75)	2504 (16.01)	15,645 (100.00)
26	Sambalpur	72 (2.06)	3417 (97.94)	3489 (18.24)	5122 (26.78)	7677 (40.14)	2836 (14.83)	19,124 (100.00)
27	Bargarh	25 (0.75)	3322 (99.25)	3347 (14.10)	7223 (30.42)	9593 (40.41)	3579 (15.07)	23,742 (100.00)
28	Jharsuguda	31 (1.81)	1686 (98.19)	1717 (10.99)	4577 (29.29)	7134 (45.66)	2197 (14.06)	15,625 (100.00)
29	Deogarh	8 (1.38)	572 (98.62)	580 (13.72)	990 (23.42)	1909 (45.16)	748 (17.70)	4227 (100.00)
30	Sundargarh	57 (1.07)	5256 (98.93)	5313 (14.67)	13,325 (36.80)	12,333 (34.06)	5239 (14.47)	36,210 (100.00)
	Total	3034 (2.46)	120,057 (97.54)	123,091 (16.37)	215,209 (28.62)	305,282 (40.60)	108,380 (14.41)	751,962 (100.00)

Note: Figures in parentheses indicate percentage to district total.

Source: Official Correspondence, Directorate of Family Welfare, Orissa, Bhubaneswar.

Table 22
District-wise Weekly Average Time Spent on System of National Accounts (SNA) Activities in Orissa (all persons)

(in hours)

Sl. No.	Districts	SNA activities								
		Rural			Urban			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Sundargarh	37.88	11.85	25.69	39.40	4.86	22.93	38.28	9.87	24.96
2.	Keonjhar	36.13	22.35	29.61	34.46	9.61	22.06	35.93	20.52	28.58
3.	Balasore	38.22	14.07	25.84	35.00	12.09	24.06	37.92	13.89	25.68
4.	Cuttack	36.52	13.61	25.14	50.49	8.43	30.07	38.08	13.04	25.67
5.	Dhenkanal	43.53	23.91	34.24	45.36	12.61	31.35	43.68	23.05	34.02
6.	Balangir	40.05	17.39	28.78	37.21	11.21	25.25	39.79	16.85	28.50
7.	Kalahandi	46.39	25.76	36.05	36.13	10.08	22.67	45.61	24.55	35.11
8.	Koraput	42.70	26.94	34.68	37.56	18.32	27.91	41.99	25.79	33.73
9.	Ganjam	40.34	21.51	30.21	33.01	11.23	22.55	38.94	19.94	28.91
10.	Puri	36.16	12.27	24.15	46.41	4.25	27.98	41.22	8.84	25.86

Note: The SNA (System of National Accounts) activities consist of primary production activities like crop farming, animal husbandry, fishing, forestry, processing and storage, mining and quarrying, and the secondary activities like construction, manufacturing, trade, business, and services.

Source: Government of Orissa (2001), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 23
**District-wise Weekly Average Time Spent on Extended
SNA Activities (all persons)**

(in hours)

Sl. No.	Districts	Extended SNA								
		Rural			Urban			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Sundargarh	7.89	41.38	23.51	7.11	49.69	27.39	7.66	43.78	24.62
2.	Keonjhar	4.51	34.51	18.72	9.51	34.23	21.85	5.17	34.45	19.14
3.	Balasore	2.57	35.81	19.60	2.71	39.11	20.07	2.57	36.09	19.65
4.	Cuttack	4.13	39.02	21.47	7.19	37.10	21.70	4.50	38.81	21.49
5.	Dhenkanal	5.10	32.87	18.23	4.47	33.40	16.82	5.06	32.91	18.11
6.	Balangir	7.82	43.13	25.29	12.41	45.74	27.74	8.22	43.35	25.52
7.	Kalahandi	5.43	3.69	21.51	7.61	37.29	22.98	5.57	37.66	21.61
8.	Koraput	3.07	30.96	17.26	3.96	38.14	21.12	3.19	31.96	17.80
9.	Ganjam	2.73	28.36	16.51	5.16	30.53	17.35	3.18	28.72	16.66
10.	Puri	4.21	35.47	19.97	3.36	35.25	17.27	3.81	35.39	18.74

Note: Extended SNA activities include household maintenance, care for children, sick, and elderly.

Source: Government of Orissa (2001), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 24
District-wise Weekly Average Time Spent on Non-SNA Activities (all persons)

(in hours)

Sl. No.	Districts	Non-SNA								
		Rural			Urban			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Sundargarh	122.20	114.80	118.75	121.50	113.41	117.64	122.00	114.40	118.41
2.	Keonjhar	127.32	111.21	119.71	124.05	124.13	124.10	126.87	113.03	120.30
3.	Balasore	127.21	118.10	122.56	130.28	116.80	123.85	127.53	117.99	122.66
4.	Cuttack	127.31	115.37	121.37	110.36	122.47	116.25	125.42	116.14	120.81
5.	Dhenkanal	119.35	111.23	115.50	118.21	121.99	119.81	119.22	112.05	115.86
6.	Balangir	120.18	107.44	113.86	118.40	111.05	115.00	119.98	107.76	113.98
7.	Kalahandi	116.21	104.53	110.40	124.20	120.61	122.37	116.80	105.78	111.29
8.	Koraput	122.22	110.09	116.02	126.47	111.58	119.00	122.85	110.29	116.45
9.	Ganjam	124.93	118.10	121.26	129.85	126.22	128.10	125.84	119.41	122.45
10.	Puri	127.57	120.24	123.87	118.20	128.71	122.80	122.98	123.84	123.37

Note: The activities related to learning, social and cultural, mass media, personal care and self-maintenance come under the category of Non-SNA activities.

Source: Government of Orissa (2001), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 25
District-wise Weekly Average Time Spent (in hours) on Some Peculiar Activities (all persons)

Sl. No.	Activities	Sundargarh		Keonjhar		Balasore		Cuttack		Dhenkanal		Balangir	
		Male (3)	Female (4)	Male (5)	Female (6)	Male (7)	Female (8)	Male (9)	Female (10)	Male (11)	Female (12)	Male (13)	Female (14)
1.	Cooking	1.52	22.45	1.08	17.33	0.31	20.94	0.85	20.94	1.20	14.57	1.71	26.94
2.	Cleaning household	0.05	0.84	0.14	2.70	0.06	5.64	0.19	3.56	0.78	4.90	0.04	3.75
3.	Cleaning utensils	0.14	2.61	0.07	1.93	0.06	3.63	0.10	2.23	0.30	2.56	0.09	2.89
4.	Washing and mending clothes	0.10	1.36	0.10	1.22	0.04	1.10	0.15	1.65	0.35	0.95	0.32	0.56
5.	Shopping	1.13	0.30	1.20	0.23	1.32	0.08	1.27	0.11	0.41	0.19	0.49	0.11
6.	Pet care	0.00	0.04	0.00	0.00	0.00	0.02	0.04	0.08	0.00	0.01	0.00	0.00
7.	Care for children	1.38	4.31	0.10	1.28	0.01	3.20	0.29	3.46	0.59	4.72	1.93	4.42
8.	Teaching own children	1.04	0.34	0.15	0.04	0.11	0.19	0.46	0.37	0.01	0.00	0.40	0.05
9.	Accompanying children to places	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.08	0.01
10.	Care for sick and elderly	0.00	0.06	0.00	0.01	0.00	0.03	0.03	0.38	0.00	0.06	0.03	0.14
11.	Supervising children	0.28	0.07	0.23	0.15	0.00	0.00	0.36	0.86	0.00	0.21	0.37	0.30
12.	Care for guests	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 25 contd.



Table 25 contd.

Sl. No.	Activities	Kalahandi		Koraput		Ganjam		Puri		Total	
		Male (15)	Female (16)	Male (17)	Female (18)	Male (19)	Female (20)	Male (21)	Female (22)	Male (23)	Female (24)
1.	Cooking	1.06	15.36	0.77	20.03	0.61	16.61	0.52	17.83	0.86	19.28
2.	Cleaning household	0.24	5.99	0.16	3.83	0.07	2.80	0.06	3.90	0.15	3.72
3.	Cleaning utensils	0.07	2.11	0.03	1.63	0.11	2.65	0.14	2.96	0.10	2.45
4.	Washing and mending clothes	0.16	1.55	0.06	0.22	0.02	0.45	0.21	1.45	0.13	1.05
5.	Shopping	0.58	0.28	0.66	0.30	1.26	0.14	1.26	0.39	1.03	0.23
6.	Pet care	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.11	0.01	0.04
7.	Care for children	1.77	6.72	0.29	4.17	0.63	4.93	0.06	3.18	0.53	3.92
8.	Teaching own children	0.13	0.01	0.03	0.01	0.17	0.08	0.20	0.40	0.27	0.18
9.	Accompanying children to places	0.00	0.00	0.01	0.09	0.01	0.00	0.04	0.02	0.02	0.02
10.	Care for sick and elderly	0.34	1.44	0.07	0.12	0.02	0.08	0.33	2.06	0.10	0.54
11.	Supervising children	0.62	1.62	0.00	0.08	0.12	0.09	0.38	1.38	0.24	0.54
12.	Care for guests	0.06	0.01	0.18	0.00	0.00	0.00	0.01	0.00	0.04	0.00

Source: Government of Orissa (2001), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 26
**Employment of Women in Selected Departments as on 31 March 1991
 (For Reporting Offices)**

Sl. No.	Department	Per cent of reporting offices	Total no. of employees	No. of women employees	Women employees to total employees (per cent)
1	2	3	4	5	6
1	Health	98.87	38,585	10,000	25.92
2	Education	99.41	78,489	12,174	15.51
3	Panchayati Raj	97.93	83,136	12,308	14.80
4	Harijan and Tribal Welfare	100.00	4990	586	11.74
5	Others	0.00	174,428	4686	2.69
	Total		379,628	39,754	10.47

Source: Government of Orissa (1995), *Report on the Census of Employees in the Public Sector in Orissa*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 27
Sex Composition (percentage distribution) of the Regular Employees by Class

(in per cent)

Sl. No.	Class	Percentage of employees as on									
		31 March 1967		31 March 1974		31 March 1981		31 March 1987		31 March 1991	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	Class-I	98.8	1.2	95.3	4.7	95.1	4.9	94.3	5.7	91.1	8.9
2	Class-II	95.4	4.6	92.1	7.9	90.5	9.5	91.0	9.0	89.0	11.0
3	Class-III (Gazetted)	99.2	0.8	NA	NA	99.3	0.7	98.7	1.3	97.8	2.2
4	Class-III (Non-Gazetted)	96.4	3.6	95.2	4.8	95.3	4.7	91.0	9.0	88.4	11.6
5	Class-IV	96.7	3.3	95.4	4.6	96.4	3.6	93.7	6.3	92.6	7.4
	Total	96.5	3.5	95.1	4.9	95.4	4.6	91.9	8.1	89.5	10.5

Note: NA: Not available.

Source: Government of Orissa (1995), *Report on the Census of Employees in the Public Sector in Orissa*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 28
Women Employed in the Organised Sector in Orissa

Year	Central Govt.		State Govt.		Quasi Govt.		Local bodies		Total public sector		Total private sector		Grand Total	
	Total (2)	Women (3)	Total (4)	Women (5)	Total (6)	Women (7)	Total (8)	Women (9)	Total (10)	Women (11)	Total (12)	Women (13)	Total (14)	Women (15)
1990	72,530	2523 (3.48)	381,594	39,495 (10.35)	188,059	7964 (4.23)	18,304	4408 (24.08)	660,487	54,390 (8.23)	109,569	13,195 (12.04)	770,056	67,585 (8.78)
1991	92,432	4054 (4.39)	376,155	42,718 (11.36)	196,528	8584 (4.37)	18,264	4403 (24.11)	683,000	60,000 (8.78)	111,000	13,000 (11.71)	794,000	73,000 (9.10)
1992	93,690	4475 (4.78)	375,993	43,627 (11.60)	211,111	8943 (4.24)	18,305	4395 (24.01)	707,000	64,000 (9.05)	102,000	12,000 (11.76)	809,000	76,000 (9.40)
1993	75,999	2813 (3.70)	401,630	50,995 (12.70)	203,103	9691 (4.77)	18,483	4455 (24.10)	699,215	67,954 (9.72)	80,216	8809 (10.98)	779,431	76,763 (9.85)
1994	75,880	2831 (3.73)	393,135	52,503 (13.35)	217,267	10,938 (5.03)	18,789	4501 (23.96)	705,071	70,773 (10.04)	94,220	11,708 (12.43)	799,291	82,481 (10.32)
1995	80,830	3273 (4.05)	393,714	54,615 (13.87)	216,227	12,032 (5.56)	18,459	3746 (20.29)	709,830	73,666 (10.38)	95,994	11,559 (12.04)	805,824	85,225 (10.58)
1996	81,873	3311 (4.04)	462,198	53,038 (11.48)	212,695	12,189 (5.73)	18,862	4611 (24.45)	775,628	73,149 (9.43)	96,097	12,879 (13.40)	871,725	86,028 (9.87)
1997	81,728	3413 (4.18)	394,480	58,988 (14.95)	218,528	12,411 (5.68)	18,235	4145 (22.73)	712,971	78,954 (11.07)	96,607	10,934 (11.32)	809,578	89,908 (11.11)
1998	81,853	3535 (4.32)	399,648	62,154 (15.55)	212,336	12,548 (5.91)	18,448	4000 (21.68)	712,285	82,237 (11.55)	99,221	11,039 (11.13)	811,506	93,276 (11.49)
1999	82,804	4084 (4.93)	397,909	56,202 (14.12)	209,526	18,622 (8.89)	18,593	4137 (22.25)	708,832	83,045 (11.72)	92,717	10,322 (11.13)	801,549	93,367 (11.65)
2000	79,770	3753 (4.70)	403,896	66,511 (16.47)	207,659	14,546 (7.00)	19,346	4025 (20.81)	710,671	89,015 (12.53)	86,916	10,002 (11.51)	797,587	99,017 (12.41)

Note: Figures in the parentheses show percentage to the respective total.

Source: Government of Orissa, Economic Survey, 2001-2002 & 1997-98, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.

Table 29

Candidates to Orissa Legislative Assembly in Various General Elections

Sl. No.	Major Party	1990		1995		2000	
		Total number of candidates contested	No. of woman candidates	Total number of candidates contested	No. of woman candidates	Total number of candidates contested	No. of woman candidates
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Indian National Congress	145	13 (8.96)	147	11 (7.48)	145	12 (8.27)
2.	Janata Dal	139	10 (7.19)	146	13 (8.90)	-	-
3.	BJD	-	-	-	-	80	7 (8.75)
4.	Bharatiya Janata Party (BJP)	62	2 (3.22)	144	4 (2.78)	62	4 (6.45)
5.	Janata Party	61	0 (0.00)	4	0 (0.00)	-	-
6.	Communist Party of India	9	0 (0.00)	22	0 (0.00)	30	1 (3.33)
7.	Communist Party of India (Marxist)	3	0 (0.00)	11	0 (0.00)	20	2 (10.00)
8.	Jharkhanda Mukti Morcha	15	1 (6.66)	17	0 (0.00)	23	1 (4.35)
9.	Independent	390	8 (2.05)	673	30 (4.46)	249	29 (11.65)
10.	Others	89	4 (4.49)	249	11 (4.42)	198	12 (6.06)

Note: (i) Total strength of the Orissa Legislative Assembly is 147;

(ii) Figures in brackets show the percentage of women candidates to the total party candidates

Source: Government of Orissa, Statistical Information on General Election to the Orissa Legislative Assembly, 1990, 1995, and 2000, Orissa Legislative Assembly, Bhubaneswar.



Table 30

Allocation of Seats for the Panchayat Members of Orissa, 2002

Sl. No.	Category	Scheduled Caste			Scheduled Tribe			Other Backward Caste			Unreserved			Total		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1.	Z P President	02 (50.00)	02 (50.00)	04 (100.00)	06 (60.00)	04 (40.00)	10 (100.00)	04 (66.67)	02 (33.33)	06 (100.00)	08 (80.00)	02 (20.00)	10 (100.00)	20 (66.66)	10 (33.33)	30 (100.00)
2.	ZP Member	85 (61.15)	54 (38.85)	139 (100.00)	133 (60.73)	86 (39.27)	219 (100.00)	150 (6.66)	82 (35.34)	232 (100.00)	189 (7.59)	75 (28.41)	264 (100.00)	557 (65.22)	297 (34.78)	854 (100.00)
3.	PS Chairman	15 (39.47)	23 (60.53)	38 (100.00)	85 (61.15)	54 (38.85)	139 (100.00)	36 (66.67)	18 (33.33)	54 (100.00)	61 (73.49)	22 (26.51)	83 (100.00)	197 (62.74)	117 (37.26)	314 (100.00)
4.	PS Member	576 (56.20)	449 (43.80)	1025 (100.00)	1030 (60.45)	674 (39.55)	1704 (100.00)	1046 (64.45)	577 (35.55)	1623 (100.00)	1386 (73.92)	489 (26.08)	1875 (100.00)	4038 (64.85)	2189 (35.15)	6227 (100.00)
5.	GP Sarpanch	480 (58.82)	336 (41.18)	816 (100.00)	1510 (62.81)	894 (37.19)	2404 (100.00)	769 (62.47)	462 (37.53)	1231 (100.00)	1287 (72.18)	496 (27.82)	1783 (100.00)	4046 (64.90)	2188 (35.10)	6234 (100.00)
6.	GP Ward Member	7874 (52.74)	7056 (47.26)	14,930 (100.00)	13,885 (60.24)	9164 (39.76)	23,049 (100.00)	14021 (61.80)	8665 (38.20)	22,686 (100.00)	20,353 (75.71)	6529 (24.29)	26,882 (100.00)	65133 (64.12)	31414 (35.88)	87,547 (100.00)
7.	Total	9032 (53.28)	7920 (46.72)	16,952 (100.00)	16,649 (60.49)	10,876 (39.51)	27,525 (100.00)	16,026 (60.04)	9806 (37.96)	25,832 (100.00)	23,284 (75.36)	7613 (24.64)	30,897 (100.00)	64,991 (64.22)	36,215 (35.78)	101,206 (100.00)

Note: (i) Figures in parenthesis indicate percentage to the respective total.

(ii) ZP: Zilla Parishad ; PS: Panchayat Samiti; and GP: Gram Panchayat.

Source: Government of Orissa, Panchayati Raj Department

Table 31
**Total Allocation of all Women's Schemes across all Departments
in the Orissa Budget**

(in thousands)

Year		BE	RE	AE
2000-01	Non Plan	6949	6972	7288
	Plan	274,942	148,424	101,792
	Total	281,891	155,396	109,080
2001-02	Non Plan	7061	7127	-
	Plan	82,743	173,938	-
	Total	89,804	181,065	-
2002-03	Non Plan	21,143	-	-
	Plan	84,580	-	-
	Total	105,723	-	-

Note: (i) BE: Budget estimate; RE: Revised estimate; AE: Actual expenditure;
(ii) Plan includes the State Plan as well as the Central Plan allocation.
Source: Gender Chapter, OHDR, School of Women's Studies, Utkal University



Table 32
**Department-wise Women-specific Schemes and their Allocation in
 2000–01 in Orissa**

(in thousand Rs)

Name of the Department	Scheme name	Plan/Non-Plan	BE	RE	AE
1. W & CD	1. Rehabilitation of distressed women	Non Plan	375	375	325
		Plan	413	413	413
		Total	788	788	738
	2. Balika Samridhi Yojana	Non Plan	0	0	0
		Plan	22,141	22,141	22,141
		Total	22,141	22,141	22,141
	3. Working Women's Hostel	Non Plan	0	0	0
		Plan	200	200	0
		Total	200	200	0
	4. DWCRA	Non Plan	0	0	0
		Plan	11,900	11,900	10,911
		Total	11,900	11,900	10,911
	5. State Commission for women	Non Plan	0	0	0
		Plan	2500	1800	1997
		Total	2500	1800	1997
	6. MVSN	Non Plan	0	0	0
		Plan	3016	3016	2720
		Total	3016	3016	2720
	7. Others	Non Plan	36	36	36
		Plan	2000	2000	0
		Total	3036	2036	36
Total	Non Plan	411	411	361	
	Plan	42,170	41,470	40,153	
	Total	42,581	41,881	40,514	
2. Industry	1. Women's Polytechnic	Non Plan	4960	4983	5460
		Plan	4084	2688	3755
		Total	9044	7671	9215
	2. Strengthening & establishing new women ITIs	Non Plan	0	0	0
		Plan	12,525	8103	10,667
		Total	12,525	8103	10,667
2. Industry	Total	Non Plan	4960	4983	5460
	Plan	16,609	10,791	14,422	
	Total	21,569	15,774	19,882	
3. Agriculture	1. TEWA	Non Plan	0	0	0
		Plan	15,000	15,000	14,077
		Total	15,000	15,000	14,077

4. ST & SC Development	1. Hostel for SC & ST girls	Non Plan	0	0	0
		Plan	5600	5600	1315
		Total	5600	5600	1315
	2. Kanyashram schools	Non Plan	0	0	0
		Plan	1630	1630	176
		Total	1630	1630	176
	3. Primary education for girls in KBK districts	Non Plan	0	0	0
		Plan	170,000	50,000	15,077
		Total	170,000	50,000	15,077
4. ST & SC Development	Total	Non Plan	0	0	0
		Plan	177,230	57,230	16,568
		Total	177,230	57,230	16,568
5. H & FW	1. Programmes for nurses, midwives, lady health visitors etc.	Non Plan	0	0	0
		Plan	22,533	22,533	15,172
		Total	22,533	22,533	15,172
6. Higher Education	1. Scholarship for women technical students	Non Plan	1578	1578	1467
		Plan	0	0	0
		Total	1578	1578	1467
7. Science and Technology	1. Choolah	Non Plan	0	0	0
		Plan	1000	1000	1000
		Total	1000	1000	1000
8. Textile and Handloom	1. Sericulture for women	Non Plan	0	0	0
		Plan	200	200	200
		Total	200	200	200
9. Labour and Employment	1. Training of women for entry into armed forces	Non Plan	0	0	0
		Plan	200	200	200
		Total	200	200	200

Note: (i) BE: Budget estimate; RE: Revised estimate; AE: Actual expenditure;

(ii) Plan includes the State Plan as well as the Central Plan allocation

Source: Utkal University (2002), *Gender Budget Analysis, 2002*, School of Women's Studies, Bhubaneswar.



Table 33

Allocation of W & CD and H & FW Departments of Government of Orissa

(in thousand Rs)

Year		BE		RE		AE	
		W & CD	H & FW	W & CD	H & FW	W & CD	H & FW
2000-01	Non Plan	959,981	2,777,140	1,035,866	2,802,093	906,370	2,736,708
	Plan	1,597,903	2,458,449	1,694,099	2,231,401	1,286,050	2,063,706
	Total	2,557,884	5,235,589	2,729,965	5,033,494	2,192,420	4,800,414
2001-02	Non Plan	1,030,591	2,859,343	1,030,591	3,103,166	-	-
	Plan	1,423,064	2,696,171	1,459,322	2,263,259	-	-
	Total	2,453,655	5,555,514	2,489,913	5,366,425	-	-
2002-03	Non Plan	1,040,456	3,692,735	-	-	-	-
	Plan	1,810,506	2,471,061	-	-	-	-
	Total	2,850,962	6,163,796	-	-	-	-

Note: BE: Budget estimate; RE: Revised estimate; AE: Actual expenditure Plan includes the State Plan as well as the Central Plan allocation

Source: Government of Orissa, *Demand for Grants*, Finance Department, Bhubaneswar, various years.

Table 34

Violence Against Women Registered Cases of Orissa in the State Commission for Women

Nature of cases	1993		1994		1995		1996		1997		1998		1999		2000-01	
	RC	DO	RC	DO	RC	DO	RC	DO	RC	DO	RC	DO	RC	DO	RC	DO
Dowry Death	115	22	190	53	172	100	182	35	188	803	148	108	111	295	138	54
Dowry Torture	226	13	655	85	672	322	906	73	896	1600	854	545	635	1195	630	361
Non-Dowry Torture	101	08	180	28	178	53	322	44	530	756	537	326	460	796	403	230
Eve-Teasing & Kidnapping	38	03	36	01	25	02	40	02	27	14	40	31	35	80	38	24
Rape	79	03	85	02	99	04	83	05	88	52	136	64	86	202	94	48
Suspected Death	68	17	64	22	89	34	87	10	74	380	73	29	46	133	46	36
Cheating Rape	14	-	70	-	60	04	90	06	155	69	133	71	117	208	131	62
Misbehaviour	45	04	113	01	139	08	191	12	210	103	242	95	145	363	126	59
Service Matter	21	-	42	02	37	03	33	02	42	27	59	26	48	92	40	13
Harassment	52	-	139	02	209	16	274	20	452	214	543	304	532	839	487	275
Land Dispute	15	-	42	02	37	03	33	02	42	27	49	41	37	56	51	24
Others	161	08	370	06	256	77	119	55	117	280	108	60	170	236	159	67
Total	935	78	1986	203	1984	644	2358	285	2838	4341	2932	1700	2431	4439	2343	1253
Annual Growth Rate			112.41		-0.10		18.85		20.36		3031		-17.09		-3.62	

Note: RC: Registered Cases; DO: Disposed Off.
Source: State Commission for Women, Orissa

Table 35
Reported Rape Cases in Orissa

District/ Railway Zones	Reported cases			Per cent increase/ decrease in 1999 with comparison to previous year (1998)	Truth cases (1999)	Charge sheet (1999)	Convicted (1999)	Acquitted (1999)
	1997	1998	1999					
Cuttack	42	48	44	-8.3	43	21	-	-
Jagatsinghpur	24	10	18	+80.0	17	10	-	-
Jajpur	9	19	28	+47.3	27	8	-	-
Kendrapara	13	25	9	-64.0	9	2	-	-
Puri	24	25	25	0	24	7	-	-
Nayagada	10	9	17	+88.8	16	3	-	-
Khurda	30	62	50	-19.3	48	17	2	6
Balasore	48	60	54	-10.0	52	15	-	-
Bhadrak	10	15	19	+26.6	18	10	-	-
Mayurbhanj	79	75	81	+8.0	78	34	-	-
Sambalpur	20	23	29	+26.0	29	18	-	-
Bargarh	9	21	19	-9.5	19	8	-	-
Deogarh	4	8	10	+25.0	10	5	-	-
Jharsuguda	13	13	14	+7.6	14	9	-	-
Dhenkanal	12	21	27	+28.5	24	13	-	-
Angul	30	33	30	-9.0	30	18	-	-
Balangir	20	23	30	+30.4	30	14	-	-
Sonepur	8	15	13	-13.3	12	8	-	-
Ganjam	12	15	27	+80.0	25	14	-	-
Gajapati	7	10	12	+20.0	10	6	-	-
Berhampur	9	8	13	+62.5	13	9	-	1
Kandhamal	30	25	25	0	23	10	-	-
Boudh	16	6	6	0	6	4	-	-
Koraput	39	29	32	+10.3	25	19	-	-
Nabarangpur	15	14	16	+14.2	14	6	-	-
Rayagada	17	18	25	+38.8	23	10	-	-
Malkangiri	19	14	8	-42.8	7	5	-	-
Kalahandi	14	22	20	-9.0	20	14	-	-
Nuapada	5	10	7	-30.0	7	4	-	-
Sundargarh	32	40	39	-2.5	39	27	1	2
Keonjhar	47	60	54	10.0	53	28	-	-
Rourkela	13	16	14	12.5	13	6	-	-
Railway	3	4	1	-75.0	1	-	-	-
Total	683	796	816	+2.5	779	382	3	9

Source: Human Rights Protection Cell (HRPC); and Crime Branch of Police, Government of Orissa

Vulnerability Reduction for Sustainable Development: The Context of Natural Disasters

Table 36
Format for Progress on Payment of Ex-Gratia to the Next of Kin (as on 30 June 2000)

Sl. No.	District	No. of dead after verification	No. of claimants found eligible	No. of application/cases rejected	Amount requirement for disbursement (Rs in lakhs)		Amount disbursed (Rs in lakhs)			Percentage	
					State	PMRF	State	PMRF	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Balasure	44	44	0	11	22	33.00	11	22	33	100.00
2	Bhadrak	83	83	118	20.75	41.5	62.25	19.75	39.5	59.25	95.18
3	Cuttack	410	393	17	98.25	196.5	294.75	89.50	175.00	264.5	89.74
4	Dhenkanal	48	47	8	11.75	23.5	35.25	11.75	23.5	35.25	100.00
5	Jagatsinghpur	6905	3025	3880	756.25	1512.5	2268.75	756.25	1512.5	2268.75	100.00
6	Jajpur	66	66	113	16.5	33	49.50	16.5	33	49.5	77.44
7	Kendrapara	365	365	99	91.25	182.5	273.75	91	121	212	100.00
8	Keonjhar	24	22	0	5.5	11	16.50	5.5	11	16.5	95.09
9	Khurda	116	95	3	23.75	47.5	71.25	23.75	44	67.75	100.00
10	Mayurbhanj	7	7	0	1.75	3.5	5.25	1.75	3.5	5.25	100.00
11	Nayagarh	3	3	0	0.75	1.5	2.25	0.75	1.5	2.25	100.00
12	Puri	231	231	0	57.75	115.5	173.25	57.75	115.5	173.25	100.00
13	Ganjam	175	175	22	43.75	87.5	131.25	43.75	87.5	131.25	100.00
14	Gajapati	2	2	0	0.5	1	1.50	0.5	1	1.5	97.12
	Total	8479	4558	4260	1139.5	2279	3418.50	1129.5	2190.5	3320	

Source: Government of Orissa (2000). 'White Paper on Super-Cyclone in Orissa', Revenue Department, June.



JHARKHAND

WEST BENGAL

CHHATTISGARH

BAY OF BENGAL

ANDHRA PRADESH

Sundargarh

Mayurbhanj

Jharsuguda

Balasore

Deogarh

Keonjhar

Sambalpur

Bargarh

Bhadrak

Sonapur

Angul

Dhenkanal

Jajpur

Boudh

Cuttack

Kendrapara

Balangir

Nayagarh

Khurda

Jagatsinghpur

Nuapada

Kandhamal

Puri

Kalahandi

Ganjam

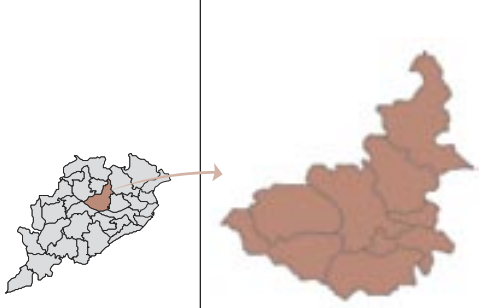
Nabarangpur

Rayagada

Gajapati

Koraput

Malkangiri

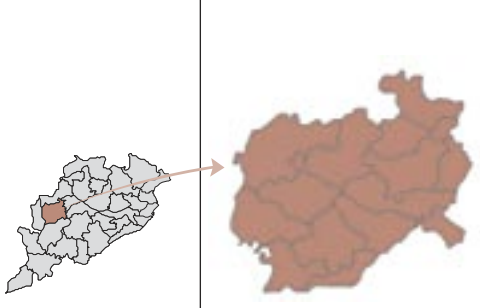


Angul

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.663
HDI Rank		6
Gender Development Index (GDI)		0.637
GDI Rank		4
Reproductive Health Index (RHI) (98-99)		0.557
RHI Rank		15
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	10877	
POPULATION	1991	2001
Total population (in lakh)	9.61	11.39
Share of state's population	3.04	3.10
Density of population (persons per square km)	151	179
Decadal growth of population (1981-91 and 1991-2001)	22.31	18.55
Urban population (in per cent)	11.46	13.9
SC population (in per cent)	16.82	
ST population (in per cent)	11.68	
HEALTH	1991	2001
Health Index Rank		12
Crude Birth Rate	31	
Doctors per one lakh population		10
No.of beds per one lakh population		28
EMPLOYMENT	1991	2001
WPR (Rural)	39.34	41.1
WPR (Urban)	30.29	31.82
WPR (All)	38.3	39.81
WPR (Female)	22.58	26.48
WPR (Male)	53.12	52.36
Share of primary sector in total main workers	74.29	
Share of secondary sector in total main workers	11.10	
Share of tertiary sector in total main workers	14.61	

DISTRICT INFORMATION	1991	2001
Area (in square km)	6375	
No. of CD Blocks	8	
No. of G.Ps	209	
Total no. of inhabited villages	1635	
Forest area as % of geographical area	43.66	
EDUCATION		
Education Index Rank		12
Literacy Rate (All)	51.53	69.40
Literacy Rate (Male)	67.66	82.02
Literacy Rate (Female)	34.32	56.01
Literacy Rate (SC)	35.88	
Literacy Rate (SC Male)	53.07	
Literacy Rate (SC Female)	18.02	
Literacy Rate (ST)	25.77	
Literacy Rate (ST Male)	40.01	
Literacy Rate (ST Female)	11.13	
GENDER		
Sex Ratio (Rural)		958
Sex Ratio (Urban)		844
Sex Ratio (All)	942	941
Sex Ratio (SC)	963	
Sex Ratio (ST)	973	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.19	
Cropping intensity (2002-03)		156
Net sown area as percentage of total geographical area		35.15
Per capita output of foodgrain (in kg per annum)		51
Agricultural labour as percentage of total rural main workers		28.15
Cultivator as percentage of total rural main workers		29.90



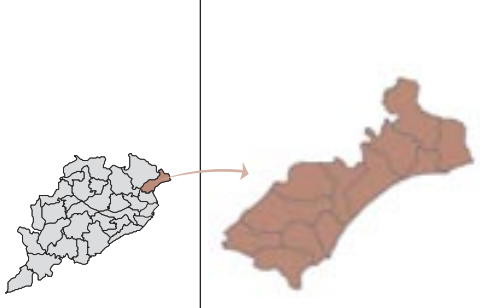


Balangir

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.546
HDI Rank		21
Gender Development Index (GDI)		0.518
GDI Rank		16
Reproductive Health Index (RHI) (98-99)		0.4789
RHI Rank		28
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4538	
POPULATION	1991	2001
Total population (in lakh)	12.31	13.36
Share of state's population	3.89	3.64
Density of population (persons per square km)	187	203
Decadal growth of population (1981-91 and 1991-2001)	15.94	8.52
Urban population (in per cent)	10.51	11.55
SC population (in per cent)	15.39	
ST population (in per cent)	22.06	
HEALTH	1991	2001
Health Index Rank		14
Crude Birth Rate	29	
Doctors per one lakh population		12
No. of beds per one lakh population		33
EMPLOYMENT	1991	2001
WPR (Rural)	42.21	43.74
WPR (Urban)	28.25	28.76
WPR (All)	40.74	42.01
WPR (Female)	22.73	28.37
WPR (Male)	58.4	55.41
Share of primary sector in total main workers	81.20	
Share of secondary sector in total main workers	6.10	
Share of tertiary sector in total main workers	12.70	

DISTRICT INFORMATION	1991	2001
Area (in square km)	6575	
No. of CD Blocks	14	
No. of G.Ps	285	
Total no. of inhabited villages	1761	
Forest area as % of geographical area	23.44	
EDUCATION		
Education Index Rank		21
Literacy Rate (All)	38.63	54.93
Literacy Rate (Male)	55.64	70.36
Literacy Rate (Female)	21.3	39.27
Literacy Rate (SC)	33.23	
Literacy Rate (SC Male)	49.58	
Literacy Rate (SC Female)	16.33	
Literacy Rate (ST)	24.86	
Literacy Rate (ST Male)	41.17	
Literacy Rate (ST Female)	8.65	
GENDER		
Sex Ratio (Rural)		990
Sex Ratio (Urban)		930
Sex Ratio (All)	981	983
Sex Ratio (SC)	969	
Sex Ratio (ST)	1008	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.43	
Cropping intensity (2002-03)		124
Net sown area as percentage of total geographical area		47.79
Per capita output of foodgrain (in kg per annum)		71
Agricultural labour as percentage of total rural main workers		40.25
Cultivator as percentage of total rural main workers		31



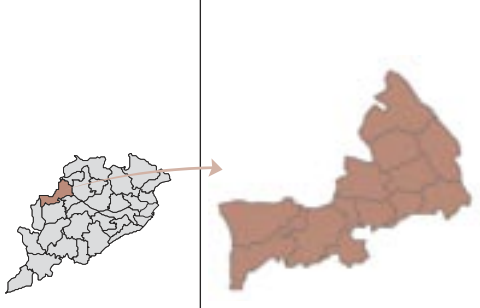


Balasore

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.559
HDI Rank		18
Gender Development Index (GDI)		0.519
GDI Rank		14
Reproductive Health Index (RHI) (98-99)		0.497
RHI Rank		25
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	3961	
POPULATION	1991	2001
Total population (in lakh)	16.97	20.23
Share of state's population	5.36	5.51
Density of population (persons per square km)	446	532
Decadal growth of population (1981-91 and 1991-2001)	24.96	19.24
Urban population (in per cent)	9.09	10.88
SC population (in per cent)	18.57	
ST population (in per cent)	10.57	
HEALTH	1991	2001
Health Index Rank		10
Crude Birth Rate	33.20	
Doctors per one lakh population		9
No. of beds per one lakh population		23
EMPLOYMENT	1991	2001
WPR (Rural)	29.57	32.3
WPR (Urban)	28.94	29.64
WPR (All)	29.52	32.01
WPR (Female)	7.71	11.44
WPR (Male)	50.35	51.54
Share of primary sector in total main workers	78.18	
Share of secondary sector in total main workers	5.00	
Share of tertiary sector in total main workers	16.90	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3806	
No. of CD Blocks	12	
No. of G.Ps	289	
Total no. of inhabited villages	2586	
Forest area as % of geographical area	9.09	
EDUCATION		
Education Index Rank		10
Literacy Rate (All)	57.64	70.94
Literacy Rate (Male)	71.23	81.75
Literacy Rate (Female)	43.4	59.57
Literacy Rate (SC)	40.47	
Literacy Rate (SC Male)	56.45	
Literacy Rate (SC Female)	23.84	
Literacy Rate (ST)	18.91	
Literacy Rate (ST Male)	30.08	
Literacy Rate (ST Female)	7.37	
GENDER		
Sex Ratio (Rural)		953
Sex Ratio (Urban)		919
Sex Ratio (All)	955	949
Sex Ratio (SC)	964	
Sex Ratio (ST)	969	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.15	
Cropping intensity (2002-03)	135	
Net sown area as percentage of total geographical area	66.12	
Per capita output of foodgrain (in kg per annum)	189	
Agricultural labour as percentage of total rural main workers	32.98	
Cultivator as percentage of total rural main workers	34.03	



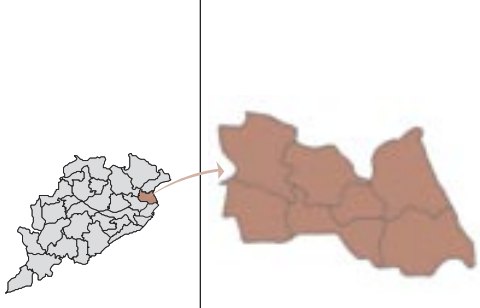


Bargarh

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.565
HDI Rank		17
Gender Development Index (GDI)		0.528
GDI Rank		13
Reproductive Health Index (RHI) (98-99)		0.5737
RHI Rank		9
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4765	
POPULATION	1991	2001
Total population (in lakh)	12.07	13.46
Share of state's population	3.81	3.67
Density of population (persons per square km)	207	231
Decadal growth of population (1981-91 and 1991-2001)	16.93	11.47
Urban population (in per cent)	6.67	7.69
SC population (in per cent)	18.44	
ST population (in per cent)	19.56	
HEALTH	1991	2001
Health Index Rank		17
Crude Birth Rate	27.90	
Doctors per one lakh population		8
No. of beds per one lakh population		18
EMPLOYMENT	1991	2001
WPR (Rural)	45.27	45.30
WPR (Urban)	30.76	29.18
WPR (All)	44.30	44.06
WPR (Female)	29.09	31.09
WPR (Male)	59.19	56.72
Share of primary sector in total main workers	79.60	
Share of secondary sector in total main workers	9.70	
Share of tertiary sector in total main workers	10.70	

DISTRICT INFORMATION	1991	2001
Area (in square km)	5837	
No. of CD Blocks	12	
No. of G.Ps	248	
Total no. of inhabited villages	1177	
Forest area as % of geographical area	20.89	
EDUCATION		
Education Index Rank		16
Literacy Rate (All)	47.65	64.13
Literacy Rate (Male)	63.78	77.93
Literacy Rate (Female)	31.21	50.03
Literacy Rate (SC)	35.68	
Literacy Rate (SC Male)	52.19	
Literacy Rate (SC Female)	18.97	
Literacy Rate (ST)	30.85	
Literacy Rate (ST Male)	47.08	
Literacy Rate (ST Female)	14.61	
GENDER		
Sex Ratio (Rural)		979
Sex Ratio (Urban)		936
Sex Ratio (All)	979	976
Sex Ratio (SC)	987	
Sex Ratio (ST)	998	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.62	
Cropping intensity (2002-03)		128
Net sown area as percentage of total geographical area		56.85
Per capita output of foodgrain (in kg per annum)		271
Agricultural labour as percentage of total rural main workers		41.66
Cultivator as percentage of total rural main workers		33.83





Bhadrak

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.646
HDI Rank		8
Gender Development Index (GDI)		0.497
GDI Rank		21
Reproductive Health Index (RHI) (98-99)		0.4746
RHI Rank		29
Per Capita GDP/Income in 1998-99 (at 1993-94 prices)	3916	
POPULATION	1991	2001
Total population (in lakh)	11.06	13.32
Share of state's population	3.49	3.63
Density of population (persons per square km)	441	532
Decadal growth of population (1981-91 and 1991-2001)	23.55	20.47
Urban population (in per cent)	9.93	10.58
SC population (in per cent)	21.71	
ST population (in per cent)	1.69	
HEALTH	1991	2001
Health Index Rank		8
Crude Birth Rate	33.2	
Doctors per one lakh population		7
No. of beds per one lakh population		20
EMPLOYMENT	1991	2001
WPR (Rural)	26.71	29.11
WPR (Urban)	26.03	27.28
WPR (All)	26.64	28.92
WPR (Female)	3.6	7.88
WPR (Male)	49.35	49.40
Share of primary sector in total main workers	78.70	
Share of secondary sector in total main workers	4.00	
Share of tertiary sector in total main workers	17.30	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2505	
No. of CD Blocks	7	
No. of G.Ps	193	
Total no. of inhabited villages	1224	
Forest area as % of geographical area	3.73	
EDUCATION		
Education Index Rank		6
Literacy Rate (All)	60.54	74.64
Literacy Rate (Male)	74.62	85.44
Literacy Rate (Female)	46.35	63.62
Literacy Rate (SC)	39.19	
Literacy Rate (SC Male)	54.26	
Literacy Rate (SC Female)	23.73	
Literacy Rate (ST)	12.87	
Literacy Rate (ST Male)	20.25	
Literacy Rate (ST Female)	4.91	
GENDER		
Sex Ratio (Rural)		978
Sex Ratio (Urban)		931
Sex Ratio (All)	985	973
Sex Ratio (SC)	974	
Sex Ratio (ST)	955	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.2	
Cropping intensity (2002-03)		124
Net sown area as percentage of total geographical area		66.42
Per capita output of foodgrain (in kg per annum)		191
Agricultural labour as percentage of total rural main workers		28.84
Cultivator as percentage of total rural main workers		39.07





Boudh

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.536
HDI Rank		23
Gender Development Index (GDI)		0.509
GDI Rank		19
Reproductive Health Index (RHI) (98-99)		0.5665
RHI Rank		12
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4436	
POPULATION	1991	2001
Total population (in lakh)	3.18	3.73
Share of state's population	1	1.02
Density of population (persons per square km)	103	120
Decadal growth of population (1981-91 and 1991-2001)	18.35	17.45
Urban population (in per cent)	4.87	4.82
SC population (in per cent)	19.64	
ST population (in per cent)	12.92	
HEALTH	1991	2001
Health Index Rank		20
Crude Birth Rate	33.60	
Doctors per one lakh population		10
No. of beds per one lakh population		19
EMPLOYMENT	1991	2001
WPR (Rural)	47.39	46.52
WPR (Urban)	30.09	31.57
WPR (All)	46.5	45.8
WPR (Female)	32.6	35.49
WPR (Male)	60.32	55.95
Share of primary sector in total main workers	85.90	
Share of secondary sector in total main workers	5.90	
Share of tertiary sector in total main workers	8.30	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3098	
No. of CD Blocks	3	
No. of G.Ps	63	
Total no. of inhabited villages	1101	
Forest area as % of geographical area	37.1	
EDUCATION		
Education Index Rank		20
Literacy Rate (All)	40.98	58.43
Literacy Rate (Male)	60.61	76.86
Literacy Rate (Female)	21.01	39.78
Literacy Rate (SC)	29.74	
Literacy Rate (SC Male)	48.13	
Literacy Rate (SC Female)	10.94	
Literacy Rate (ST)	28.88	
Literacy Rate (ST Male)	48.41	
Literacy Rate (ST Female)	9.3	
GENDER		
Sex Ratio (Rural)		987
Sex Ratio (Urban)		938
Sex Ratio (All)	987	985
Sex Ratio (SC)	985	
Sex Ratio (ST)	1001	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.40	
Cropping intensity (2002-03)		134
Net sown area as percentage of total geographical area		23.19
Per capita output of foodgrain (in kg per annum)		107
Agricultural labour as percentage of total rural main workers		39.7
Cultivator as percentage of total rural main workers		38.41





Cuttack

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.695
HDI Rank		3
Gender Development Index (GDI)		0.618
GDI Rank		7
Reproductive Health Index (RHI) (98-99)		0.5935
RHI Rank		5
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5116	
POPULATION	1991	2001
Total population (in lakh)	20.53	23.41
Share of state's population	6.49	6.38
Density of population (persons per square km)	522	595
Decadal growth of population (1981-91 and 1991-2001)	19.37	14
Urban population (in per cent)	24.63	27.41
SC population (in per cent)	18.19	
ST population (in per cent)	3.49	
HEALTH	1991	2001
Health Index Rank		7
Crude Birth Rate	29.20	
Doctors per one lakh population		26
No. of beds per one lakh population		83
EMPLOYMENT	1991	2001
WPR (Rural)	29.48	34.79
WPR (Urban)	30.16	31.65
WPR (All)	29.64	33.93
WPR (Female)	7.02	13.63
WPR (Male)	50.48	52.98
Share of primary sector in total main workers	55.00	
Share of secondary sector in total main workers	12.60	
Share of tertiary sector in total main workers	32.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3932	
No. of CD Blocks	14	
No. of G.Ps	342	
Total no. of inhabited villages	1865	
Forest area as % of geographical area	21.18	
EDUCATION		
Education Index Rank		5
Literacy Rate (All)	65.46	76.13
Literacy Rate (Male)	77.41	85.46
Literacy Rate (Female)	52.44	66.19
Literacy Rate (SC)	45.39	
Literacy Rate (SC Male)	59.75	
Literacy Rate (SC Female)	30.22	
Literacy Rate (ST)	21.03	
Literacy Rate (ST Male)	32.83	
Literacy Rate (ST Female)	8.24	
GENDER		
Sex Ratio (Rural)		964
Sex Ratio (Urban)		873
Sex Ratio (All)	922	938
Sex Ratio (SC)	948	
Sex Ratio (ST)	938	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.15	
Cropping intensity (2002-03)		176
Net sown area as percentage of total geographical area		47.45
Per capita output of foodgrain (in kg per annum)		85
Agricultural labour as percentage of total rural main workers		22.96
Cultivator as percentage of total rural main workers		20.17





Deogarh

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.669
HDI Rank		5
Gender Development Index (GDI)		0.647
GDI Rank		3
Reproductive Health Index (RHI) (98-99)		0.4984
RHI Rank		24
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5822	
POPULATION	1991	2001
Total population (in lakh)	2.34	2.74
Share of state's population	0.74	0.75
Density of population (persons per square km)	80	93
Decadal growth of population (1981-91 and 1991-2001)	18.50	17.02
Urban population (in per cent)	7.37	7.33
SC population (in per cent)	14.60	
ST population (in per cent)	33.31	
HEALTH	1991	2001
Health Index Rank		2
Crude Birth Rate	27.90	
Doctors per one lakh population		12
No. of beds per one lakh population		43
EMPLOYMENT	1991	2001
WPR (Rural)	46.18	47.14
WPR (Urban)	28.4	33.12
WPR (All)	44.87	46.11
WPR (Female)	33.66	38.6
WPR (Male)	55.87	53.48
Share of primary sector in total main workers	85.20	
Share of secondary sector in total main workers	5.10	
Share of tertiary sector in total main workers	9.70	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2940	
No. of CD Blocks	3	
No. of G.Ps	60	
Total no. of inhabited villages	697	
Forest area as % of geographical area	56.12	
EDUCATION		
Education Index Rank		19
Literacy Rate (All)	44.45	60.78
Literacy Rate (Male)	59.43	73.79
Literacy Rate (Female)	29.26	47.56
Literacy Rate (SC)	34.06	
Literacy Rate (SC Male)	50.39	
Literacy Rate (SC Female)	17.61	
Literacy Rate (ST)	27.47	
Literacy Rate (ST Male)	41.25	
Literacy Rate (ST Female)	13.73	
GENDER		
Sex Ratio (Rural)		986
Sex Ratio (Urban)		911
Sex Ratio (All)	982	980
Sex Ratio (SC)	989	
Sex Ratio (ST)	998	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.48	
Cropping intensity (2002-03)		132
Net sown area as percentage of total geographical area		24.46
Per capita output of foodgrain (in kg per annum)		82
Agricultural labour as percentage of total rural main workers		43.92
Cultivator as percentage of total rural main workers		34.47



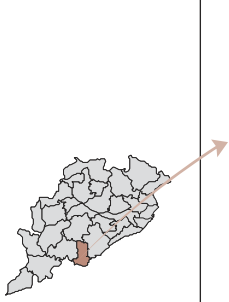


Dhenkanal

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.591
HDI Rank		12
Gender Development Index (GDI)		0.531
GDI Rank		12
Reproductive Health Index (RHI) (98-99)		0.5271
RHI Rank		19
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5046	
POPULATION	1991	2001
Total population (in lakh)	9.48	10.60
Share of state's population	2.99	2.90
Density of population (persons per square km)	213	239
Decadal growth of population (1981-91 and 1991-2001)	18.92	12.46
Urban population (in per cent)	8.24	8.7
SC population (in per cent)	16.03	
ST population (in per cent)	12.68	
HEALTH	1991	2001
Health Index Rank		15
Crude Birth Rate	31	
Doctors per one lakh population		13
No. of beds per one lakh population		36
EMPLOYMENT	1991	2001
WPR (Rural)	33.29	33.89
WPR (Urban)	28.6	28.8
WPR (All)	32.9	33.44
WPR (Female)	11.73	15.00
WPR (Male)	53.09	51.18
Share of primary sector in total main workers	76.10	
Share of secondary sector in total main workers	7.50	
Share of tertiary sector in total main workers	16.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	4452	
No. of CD Blocks	8	
No. of G.Ps	199	
Total no. of inhabited villages	1060	
Forest area as % of geographical area	37.83	
EDUCATION		
Education Index Rank		9
Literacy Rate (All)	54.91	70.11
Literacy Rate (Male)	68.8	81.31
Literacy Rate (Female)	40.33	58.55
Literacy Rate (SC)	34.98	
Literacy Rate (SC Male)	51.08	
Literacy Rate (SC Female)	18.13	
Literacy Rate (ST)	22.40	
Literacy Rate (ST Male)	35.01	
Literacy Rate (ST Female)	9.28	
GENDER		
Sex Ratio (Rural)		968
Sex Ratio (Urban)		899
Sex Ratio (All)	954	962
Sex Ratio (SC)	961	
Sex Ratio (ST)	963	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.29	
Cropping intensity (2002-03)		144
Net sown area as percentage of total geographical area		41.96
Per capita output of foodgrain (in kg per annum)		75
Agricultural labour as percentage of total rural main workers		34.29
Cultivator as percentage of total rural main workers		25.26



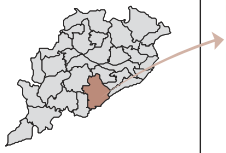


Gajapati

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.431
HDI Rank		28
Gender Development Index (GDI)		0.401
GDI Rank		27
Reproductive Health Index (RHI) (98-99)		0.5657
RHI Rank		14
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5498	
POPULATION	1991	2001
Total population (in lakh)	4.55	5.18
Share of state's population	1.44	1.41
Density of population (persons per square km)	105	120
Decadal growth of population (1981-91 and 1991-2001)	13.04	14.02
Urban population (in per cent)	10.29	10.18
SC population (in per cent)	8.77	
ST population (in per cent)	47.88	
HEALTH	1991	2001
Health Index Rank		28
Crude Birth Rate	32.4	
Doctors per one lakh population		13
No. of beds per one lakh population		38
EMPLOYMENT	1991	2001
WPR (Rural)	51.48	55.32
WPR (Urban)	30.24	34.31
WPR (All)	49.29	53.18
WPR (Female)	41.81	49.8
WPR (Male)	56.98	56.67
Share of primary sector in total main workers	87.00	
Share of secondary sector in total main workers	2.80	
Share of tertiary sector in total main workers	10.20	

DISTRICT INFORMATION	1991	2001
Area (in square km)	4325	
No. of CD Blocks	7	
No. of G.Ps	129	
Total no. of inhabited villages	1460	
Forest area as % of geographical area	64.16	
EDUCATION		
Education Index Rank		26
Literacy Rate (All)	29.37	41.73
Literacy Rate (Male)	41.76	55.14
Literacy Rate (Female)	17.44	28.91
Literacy Rate (SC)	21.74	
Literacy Rate (SC Male)	33.44	
Literacy Rate (SC Female)	10.14	
Literacy Rate (ST)	15.88	
Literacy Rate (ST Male)	25.66	
Literacy Rate (ST Female)	6.75	
GENDER		
Sex Ratio (Rural)		1036
Sex Ratio (Urban)		989
Sex Ratio (All)	1027	1031
Sex Ratio (SC)	1012	
Sex Ratio (ST)	1057	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	0.98	
Cropping intensity (2002-03)		152
Net sown area as percentage of total geographical area		19.48
Per capita output of foodgrain (in kg per annum)		157
Agricultural labour as percentage of total rural main workers		45.21
Cultivator as percentage of total rural main workers		32.88





Ganjam

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.551
HDI Rank		20
Gender Development Index (GDI)		0.518
GDI Rank		15
Reproductive Health Index (RHI) (98-99)		0.5257
RHI Rank		20
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5013	
POPULATION	1991	2001
Total population (in lakh)	27.04	31.37
Share of state's population	8.54	8.55
Density of population (persons per square km)	330	382
Decadal growth of population (1981-91 and 1991-2001)	19.25	16.01
Urban population (in per cent)	15.67	17.16
SC population (in per cent)	17.91	
ST population (in per cent)	2.93	
HEALTH	1991	2001
Health Index Rank		21
Crude Birth Rate	32.40	
Doctors per one lakh population		17
No. of beds per one lakh population		49
EMPLOYMENT	1991	2001
WPR (Rural)	42.24	43.89
WPR (Urban)	28.48	30.66
WPR (All)	40.08	41.62
WPR (Female)	27.69	31.12
WPR (Male)	52.55	52.12
Share of primary sector in total main workers	75.60	
Share of secondary sector in total main workers	7.10	
Share of tertiary sector in total main workers	17.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	8206	
No. of CD Blocks	22	
No. of G.Ps	475	
Total no. of inhabited villages	2762	
Forest area as % of geographical area	36.17	
EDUCATION		
Education Index Rank		17
Literacy Rate (All)	46.72	62.94
Literacy Rate (Male)	63.88	78.39
Literacy Rate (Female)	29.87	47.70
Literacy Rate (SC)	28.01	
Literacy Rate (SC Male)	44.88	
Literacy Rate (SC Female)	11.49	
Literacy Rate (ST)	19.98	
Literacy Rate (ST Male)	32.69	
Literacy Rate (ST Female)	7.02	
GENDER		
Sex Ratio (Rural)		1011
Sex Ratio (Urban)		946
Sex Ratio (All)	1006	1000
Sex Ratio (SC)	1014	
Sex Ratio (ST)	983	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	0.98	
Cropping intensity (2002-03)		144
Net sown area as percentage of total geographical area		45.12
Per capita output of foodgrain (in kg per annum)		115
Agricultural labour as percentage of total rural main workers		38.43
Cultivator as percentage of total rural main workers		24.71



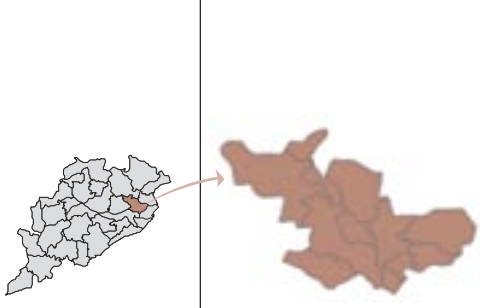


Jagatsinghpur

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.557
HDI Rank		19
Gender Development Index (GDI)		0.491
GDI Rank		22
Reproductive Health Index (RHI) (98-99)		0.6341
RHI Rank		2
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5340	
POPULATION	1991	2001
Total population (in lakh)	9.34	10.57
Share of state's population	2.95	2.88
Density of population (persons per square km)	560	633
Decadal growth of population (1981-91 and 1991-2001)	17.98	13.15
Urban population (in per cent)	7.5	9.87
SC population (in per cent)	21.72	
ST population (in per cent)	0.61	
HEALTH	1991	2001
Health Index Rank		25
Crude Birth Rate	29.2	
Doctors per one lakh population		8
No. of beds per one lakh population		14
EMPLOYMENT	1991	2001
WPR (Rural)	26.96	30.89
WPR (Urban)	32.91	34.43
WPR (All)	27.44	31.24
WPR (Female)	5.95	11.38
WPR (Male)	48.43	50.35
Share of primary sector in total main workers	69.70	
Share of secondary sector in total main workers	7.30	
Share of tertiary sector in total main workers	23.00	

DISTRICT INFORMATION	1991	2001
Area (in square km)	1668	
No. of CD Blocks	8	
No. of G.Ps	195	
Total no. of inhabited villages	1318	
Forest area as % of geographical area	6.6	
EDUCATION		
Education Index Rank		2
Literacy Rate (All)	65.77	79.61
Literacy Rate (Male)	75.27	88.96
Literacy Rate (Female)	53.05	69.94
Literacy Rate (SC)	47.87	
Literacy Rate (SC Male)	62.81	
Literacy Rate (SC Female)	32.56	
Literacy Rate (ST)	24.87	
Literacy Rate (ST Male)	35.35	
Literacy Rate (ST Female)	13.33	
GENDER		
Sex Ratio (Rural)		983
Sex Ratio (Urban)		788
Sex Ratio (All)	977	962
Sex Ratio (SC)	970	
Sex Ratio (ST)	926	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.19	
Cropping intensity (2002-03)		185
Net sown area as percentage of total geographical area		50.25
Per capita output of foodgrain (in kg per annum)		124
Agricultural labour as percentage of total rural main workers		25.42
Cultivator as percentage of total rural main workers		29.03



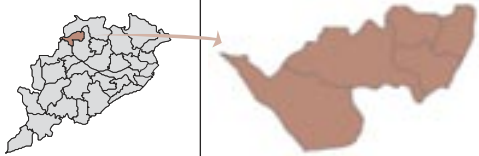


Jajpur

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.54
HDI Rank		22
Gender Development Index (GDI)		0.386
GDI Rank		28
Reproductive Health Index (RHI) (98-99)		0.5672
RHI Rank		13
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4468	
POPULATION	1991	2001
Total population (in lakh)	13.86	16.23
Share of state's population	4.38	4.42
Density of population (persons per square km)	478	560
Decadal growth of population (1981-91 and 1991-2001)	22.01	17.08
Urban population (in per cent)	3.85	4.49
SC population (in per cent)	22.87	
ST population (in per cent)	7.40	
HEALTH	1991	2001
Health Index Rank		24
Crude Birth Rate	29.2	
Doctors per one lakh population		7
No. of beds per one lakh population		14
EMPLOYMENT	1991	2001
WPR (Rural)	26.41	27.45
WPR (Urban)	27.2	27.48
WPR (All)	26.44	27.45
WPR (Female)	4.39	6.71
WPR (Male)	47.99	47.61
Share of primary sector in total main workers	73.00	
Share of secondary sector in total main workers	6.80	
Share of tertiary sector in total main workers	20.30	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2899	
No. of CD Blocks	10	
No. of G.Ps	280	
Total no. of inhabited villages	1560	
Forest area as % of geographical area	24.91	
EDUCATION		
Education Index Rank		7
Literacy Rate (All)	58	72.19
Literacy Rate (Male)	70.50	82.69
Literacy Rate (Female)	45.29	61.45
Literacy Rate (SC)	35.53	
Literacy Rate (SC Male)	50.12	
Literacy Rate (SC Female)	20.19	
Literacy Rate (ST)	16.04	
Literacy Rate (ST Male)	26.05	
Literacy Rate (ST Female)	5.60	
GENDER		
Sex Ratio (Rural)		976
Sex Ratio (Urban)		906
Sex Ratio (All)	977	973
Sex Ratio (SC)	950	
Sex Ratio (ST)	971	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.41	
Cropping intensity (2002-03)		166
Net sown area as percentage of total geographical area		57.44
Per capita output of foodgrain (in kg per annum)		74
Agricultural labour as percentage of total rural main workers		30.33
Cultivator as percentage of total rural main workers		25.59



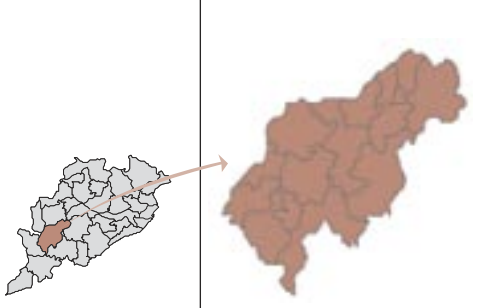


Jharsuguda

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.723
HDI Rank		2
Gender Development Index (GDI)		0.687
GDI Rank		1
Reproductive Health Index (RHI) (98-99)		0.6694
RHI Rank		1
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	11210	
POPULATION	1991	2001
Total population (in lakh)	4.42	5.09
Share of state's population	1.40	1.39
Density of population (persons per square km)	212	245
Decadal growth of population (1981-91 and 1991-2001)	21.41	15.13
Urban population (in per cent)	35.67	36.4
SC population (in per cent)	17.15	
ST population (in per cent)	31.88	
HEALTH	1991	2001
Health Index Rank		9
Crude Birth Rate	27.90	
Doctors per one lakh population		10
No. of beds per one lakh population		21
EMPLOYMENT	1991	2001
WPR (Rural)	44.1	41.94
WPR (Urban)	29.67	28.85
WPR (All)	38.9	37.17
WPR (Female)	22.86	22.43
WPR (Male)	53.94	51.12
Share of primary sector in total main workers	66.00	
Share of secondary sector in total main workers	14.30	
Share of tertiary sector in total main workers	19.80	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2081	
No. of CD Blocks	5	
No. of G.Ps	78	
Total no. of inhabited villages	353	
Forest area as % of geographical area	9.09	
EDUCATION		
Education Index Rank		8
Literacy Rate (All)	52.73	71.47
Literacy Rate (Male)	67.29	83.04
Literacy Rate (Female)	37.11	59.23
Literacy Rate (SC)	42.16	
Literacy Rate (SC Male)	58.64	
Literacy Rate (SC Female)	25.21	
Literacy Rate (ST)	34.87	
Literacy Rate (ST Male)	50.95	
Literacy Rate (ST Female)	18.37	
GENDER		
Sex Ratio (Rural)		975
Sex Ratio (Urban)		898
Sex Ratio (All)	938	946
Sex Ratio (SC)	973	
Sex Ratio (ST)	979	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.24	
Cropping intensity (2002-03)		122
Net sown area as percentage of total geographical area		32.73
Per capita output of foodgrain (in kg per annum)		49
Agricultural labour as percentage of total rural main workers		24.58
Cultivator as percentage of total rural main workers		22.15



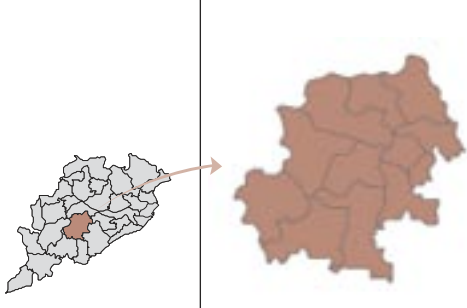


Kalahandi

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.606
HDI Rank		11
Gender Development Index (GDI)		0.579
GDI Rank		8
Reproductive Health Index (RHI) (98-99)		0.5263
RHI Rank		21
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4043	
POPULATION	1991	2001
Total population (in lakh)	11.31	13.34
Share of state's population	3.57	3.64
Density of population (persons per square km)	143	168
Decadal growth of population (1981-91 and 1991-2001)	19.48	17.99
Urban population (in per cent)	6.91	7.51
SC population (in per cent)	17.01	
ST population (in per cent)	28.88	
HEALTH	1991	2001
Health Index Rank		3
Crude Birth Rate	22.90	
Doctors per one lakh population		12
No. of beds per one lakh population		37
EMPLOYMENT	1991	2001
WPR (Rural)	46.17	47.76
WPR (Urban)	30.27	31.06
WPR (All)	45.07	46.5
WPR (Female)	28.97	35.83
WPR (Male)	61.17	57.18
Share of primary sector in total main workers	85.10	
Share of secondary sector in total main workers	4.50	
Share of tertiary sector in total main workers	10.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	7920	
No. of CD Blocks	13	
No. of G.Ps	273	
Total no. of inhabited villages	2068	
Forest area as % of geographical area	37.56	
EDUCATION		
Education Index Rank		24
Literacy Rate (All)	31.08	46.20
Literacy Rate (Male)	46.85	62.88
Literacy Rate (Female)	18.28	29.56
Literacy Rate (SC)	28.20	
Literacy Rate (SC Male)	44.47	
Literacy Rate (SC Female)	12	
Literacy Rate (ST)	18.54	
Literacy Rate (ST Male)	32	
Literacy Rate (ST Female)	5.48	
GENDER		
Sex Ratio (Rural)		1006
Sex Ratio (Urban)		929
Sex Ratio (All)	999	1000
Sex Ratio (SC)	1005	
Sex Ratio (ST)	1028	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.74	
Cropping intensity (2002-03)		129
Net sown area as percentage of total geographical area		42.58
Per capita output of foodgrain (in kg per annum)		276
Agricultural labour as percentage of total rural main workers		50.32
Cultivator as percentage of total rural main workers		29.68





Kandhamal

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.389
HDI Rank		29
Gender Development Index (GDI)		0.372
GDI Rank		29
Reproductive Health Index (RHI) (98-99)		0.4621
RHI Rank		30
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4743	
POPULATION	1991	2001
Total population (in lakh)	5.46	6.48
Share of state's population	1.73	1.76
Density of population (persons per square km)	68	81
Decadal growth of population (1981-91 and 1991-2001)	21.69	18.6
Urban population (in per cent)	6.53	6.81
SC population (in per cent)	18.21	
ST population (in per cent)	51.51	
HEALTH	1991	2001
Health Index Rank		30
Crude Birth Rate	33.60	
Doctors per one lakh population		23
No. of beds per one lakh population		63
EMPLOYMENT	1991	2001
WPR (Rural)	49	48.54
WPR (Urban)	29.9	29.39
WPR (All)	47.75	47.24
WPR (Female)	39.61	42.17
WPR (Male)	55.89	52.34
Share of primary sector in total main workers	84.5	
Share of secondary sector in total main workers	3.60	
Share of tertiary sector in total main workers	11.90	

DISTRICT INFORMATION	1991	2001
Area (in square km)	8021	
No. of CD Blocks	12	
No. of G.Ps	153	
Total no. of inhabited villages	2336	
Forest area as % of geographical area	74.64	
EDUCATION		
Education Index Rank		23
Literacy Rate (All)	37.23	52.95
Literacy Rate (Male)	54.68	69.98
Literacy Rate (Female)	19.82	36.19
Literacy Rate (SC)	34.51	
Literacy Rate (SC Male)	52.93	
Literacy Rate (SC Female)	16.08	
Literacy Rate (ST)	27.49	
Literacy Rate (ST Male)	43.93	
Literacy Rate (ST Female)	11.56	
GENDER		
Sex Ratio (Rural)		1014
Sex Ratio (Urban)		928
Sex Ratio (All)	999	1008
Sex Ratio (SC)	997	
Sex Ratio (ST)	1027	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.27	
Cropping intensity (2002-03)		141
Net sown area as percentage of total geographical area		15.95
Per capita output of foodgrain (in kg per annum)		84
Agricultural labour as percentage of total rural main workers		36.01
Cultivator as percentage of total rural main workers		33.45





Kendrapara

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.626
HDI Rank		10
Gender Development Index (GDI)		0.516
GDI Rank		18
Reproductive Health Index (RHI) (98-99)		0.5532
RHI Rank		16
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	3964	
POPULATION	1991	2001
Total population (in lakh)	11.05	13.02
Share of state's population	3.63	3.55
Density of population (persons per square km)	435	492
Decadal growth of population (1981-91 and 1991-2001)	17.15	13.25
Urban population (in per cent)	5.5	5.69
SC population (in per cent)	19.83	
ST population (in per cent)	0.4	
HEALTH	1991	2001
Health Index Rank		11
Crude Birth Rate	29.2	
Doctors per one lakh population		8
No. of beds per one lakh population		21
EMPLOYMENT	1991	2001
WPR (Rural)	25.17	29.98
WPR (Urban)	47.89	50.21
WPR (All)	25.08	29.83
WPR (Female)	2.71	9.92
WPR (Male)	47.61	50.03
Share of primary sector in total main workers	78.00	
Share of secondary sector in total main workers	5.00	
Share of tertiary sector in total main workers	16.90	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2644	
No. of CD Blocks	9	
No. of G.Ps	230	
Total no. of inhabited villages	1389	
Forest area as % of geographical area	9.8	
EDUCATION		
Education Index Rank		4
Literacy Rate (All)	63.61	77.33
Literacy Rate (Male)	76.82	87.62
Literacy Rate (Female)	50.67	67.29
Literacy Rate (SC)	41.77	
Literacy Rate (SC Male)	57.82	
Literacy Rate (SC Female)	25.33	
Literacy Rate (ST)	16.86	
Literacy Rate (ST Male)	26.02	
Literacy Rate (ST Female)	6.25	
GENDER		
Sex Ratio (Rural)		1018
Sex Ratio (Urban)		947
Sex Ratio (All)	1007	1014
Sex Ratio (SC)	972	
Sex Ratio (ST)	869	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.31	
Cropping intensity (2002-03)		176
Net sown area as percentage of total geographical area		51.37
Per capita output of foodgrain (in kg per annum)		108
Agricultural labour as percentage of total rural main workers		25.45
Cultivator as percentage of total rural main workers		42.01





Keonjhar

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.53
HDI Rank		24
Gender Development Index (GDI)		0.504
GDI Rank		20
Reproductive Health Index (RHI) (98-99)		0.5949
RHI Rank		4
Per Capita GDP/Income in 1998-99 (at 1993-94 prices)	5286	
POPULATION	1991	2001
Total population (in lakh)	13.37	15.62
Share of state's population	4.22	4.25
Density of population (persons per square km)	161	188
Decadal growth of population (1981-91 and 1991-2001)	19.95	16.79
Urban population (in per cent)	12.48	13.64
SC population (in per cent)	11.49	
ST population (in per cent)	44.52	
HEALTH	1991	2001
Health Index Rank		22
Crude Birth Rate	32.30	
Doctors per one lakh population		13
No. of beds per one lakh population		32
EMPLOYMENT	1991	2001
WPR (Rural)	40.07	41.3
WPR (Urban)	30.07	30.29
WPR (All)	38.82	39.79
WPR (Female)	24.35	28.01
WPR (Male)	52.9	51.31
Share of primary sector in total main workers	80.80	
Share of secondary sector in total main workers	5.90	
Share of tertiary sector in total main workers	13.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	8303	
No. of CD Blocks	13	
No. of G.Ps	286	
Total no. of inhabited villages	2067	
Forest area as % of geographical area	37.35	
EDUCATION		
Education Index Rank		18
Literacy Rate (All)	44.73	59.75
Literacy Rate (Male)	59.04	72.53
Literacy Rate (Female)	30.01	46.71
Literacy Rate (SC)	63.67	
Literacy Rate (SC Male)	61.29	
Literacy Rate (SC Female)	25.65	
Literacy Rate (ST)	24.89	
Literacy Rate (ST Male)	38.01	
Literacy Rate (ST Female)	11.74	
GENDER		
Sex Ratio (Rural)		988
Sex Ratio (Urban)		908
Sex Ratio (All)	974	977
Sex Ratio (SC)	977	
Sex Ratio (ST)	998	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.18	
Cropping intensity (2002-03)	140	
Net sown area as percentage of total geographical area	34.22	
Per capita output of foodgrain (in kg per annum)	147	
Agricultural labour as percentage of total rural main workers	36.38	
Cultivator as percentage of total rural main workers	32.95	



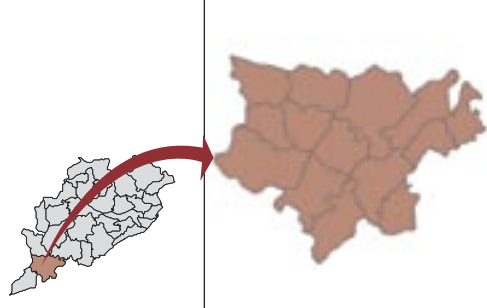


Khurda

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.736
HDI Rank		1
Gender Development Index (GDI)		0.632
GDI Rank		5
Reproductive Health Index (RHI) (98-99)		0.567
RHI Rank		11
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	7353	
POPULATION	1991	2001
Total population (in lakh)	15.02	18.74
Share of state's population	4.74	5.11
Density of population (persons per square km)	534	666
Decadal growth of population (1981-91 and 1991-2001)	32.67	24.79
Urban population (in per cent)	34.37	42.93
SC population (in per cent)	13.62	
ST population (in per cent)	5.14	
HEALTH	1991	2001
Health Index Rank		4
Crude Birth Rate	28.10	
Doctors per one lakh population		12
No. of beds per one lakh population		30
EMPLOYMENT	1991	2001
WPR (Rural)	29.17	29.38
WPR (Urban)	31.41	32.31
WPR (All)	29.94	30.64
WPR (Female)	7.16	8.56
WPR (Male)	50.51	50.52
Share of primary sector in total main workers	50.200	
Share of secondary sector in total main workers	11.900	
Share of tertiary sector in total main workers	37.900	

DISTRICT INFORMATION	1991	2001
Area (in square km)	2813	
No. of CD Blocks	10	
No. of G.Ps	168	
Total no. of inhabited villages	1355	
Forest area as % of geographical area	21.45	
EDUCATION		
Education Index Rank		1
Literacy Rate (All)	67.72	80.19
Literacy Rate (Male)	78.74	88.38
Literacy Rate (Female)	55.39	71.06
Literacy Rate (SC)	47.46	
Literacy Rate (SC Male)	62.73	
Literacy Rate (SC Female)	31.29	
Literacy Rate (ST)	28.11	
Literacy Rate (ST Male)	41.66	
Literacy Rate (ST Female)	13.41	
GENDER		
Sex Ratio (Rural)		970
Sex Ratio (Urban)		817
Sex Ratio (All)	903	901
Sex Ratio (SC)	948	
Sex Ratio (ST)	934	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	0.93	
Cropping intensity (2002-03)		161
Net sown area as percentage of total geographical area		44.98
Per capita output of foodgrain (in kg per annum)		99
Agricultural labour as percentage of total rural main workers		16.40
Cultivator as percentage of total rural main workers		13.88



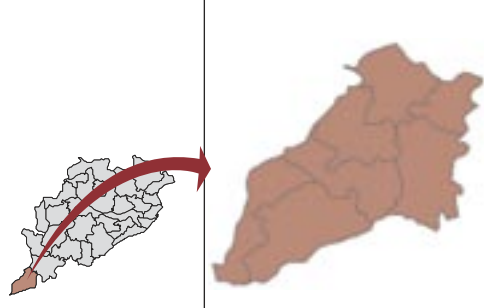


Koraput

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.431
HDI Rank		27
Gender Development Index (GDI)		0.415
GDI Rank		26
Reproductive Health Index (RHI) (98-99)		0.509
RHI Rank		22
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	5148	
POPULATION	1991	2001
Total population (in lakh)	10.3	11.78
Share of state's population	3.25	3.21
Density of population (persons per square km)	117	134
Decadal growth of population (1981-91 and 1991-2001)	19.93	14.41
Urban population (in per cent)	16.67	16.82
SC population (in per cent)	13.41	
ST population (in per cent)	50.67	
HEALTH	1991	2001
Health Index Rank		27
Crude Birth Rate	34.30	
Doctors per one lakh population		13
No. of beds per one lakh population		30
EMPLOYMENT	1991	2001
WPR (Rural)	53.68	51.70
WPR (Urban)	31.01	32.45
WPR (All)	49.9	48.46
WPR (Female)	39.49	40.48
WPR (Male)	60.22	56.43
Share of primary sector in total main workers	81.20	
Share of secondary sector in total main workers	4.80	
Share of tertiary sector in total main workers	14.00	

DISTRICT INFORMATION	1991	2001
Area (in square km)	8807	
No. of CD Blocks	14	
No. of G.Ps	226	
Total no. of inhabited villages	1915	
Forest area as % of geographical area	23.80	
EDUCATION		
Education Index Rank		27
Literacy Rate (All)	24.64	36.2
Literacy Rate (Male)	33.98	47.58
Literacy Rate (Female)	15.15	24.81
Literacy Rate (SC)	20.18	
Literacy Rate (SC Male)	30.93	
Literacy Rate (SC Female)	9.25	
Literacy Rate (ST)	8.34	
Literacy Rate (ST Male)	14.61	
Literacy Rate (ST Female)	2.14	
GENDER		
Sex Ratio (Rural)		1009
Sex Ratio (Urban)		948
Sex Ratio (All)	991	998
Sex Ratio (SC)	995	
Sex Ratio (ST)	1013	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.65	
Cropping intensity (2002-03)		130
Net sown area as percentage of total geographical area		36.71
Per capita output of foodgrain (in kg per annum)		226
Agricultural labour as percentage of total rural main workers		40.24
Cultivator as percentage of total rural main workers		32.71



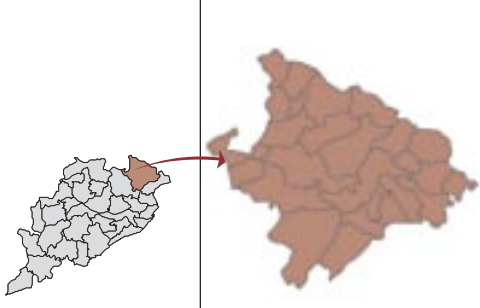


Malkangiri

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.37
HDI Rank		30
Gender Development Index (GDI)		0.362
GDI Rank		30
Reproductive Health Index (RHI) (98-99)		0.502
RHI Rank		23
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4436	
POPULATION	1991	2001
Total population (in lakh)	4.22	4.80
Share of state's population	1.33	1.31
Density of population (persons per square km)	73	83
Decadal growth of population (1981-91 and 1991-2001)	26.00	13.71
Urban population (in per cent)	8.16	7.21
SC population (in per cent)	19.96	
ST population (in per cent)	58.36	
HEALTH	1991	2001
Health Index Rank		29
Crude Birth Rate	34.30	
Doctors per one lakh population		18
No. of beds per one lakh population		60
EMPLOYMENT	1991	2001
WPR (Rural)	48.24	52.87
WPR (Urban)	31.58	33.23
WPR (All)	46.88	51.45
WPR (Female)	35.07	44.11
WPR (Male)	58.50	58.77
Share of primary sector in total main workers	91.30	
Share of secondary sector in total main workers	1.70	
Share of tertiary sector in total main workers	7.00	

DISTRICT INFORMATION	1991	2001
Area (in square km)	5791	
No. of CD Blocks	7	
No. of G.Ps	108	
Total no. of inhabited villages	878	
Forest area as % of geographical area	54.12	
EDUCATION		
Education Index Rank		30
Literacy Rate (All)	20.04	31.26
Literacy Rate (Male)	28.24	41.21
Literacy Rate (Female)	18.69	21.28
Literacy Rate (SC)	33.76	
Literacy Rate (SC Male)	46.09	
Literacy Rate (SC Female)	21.15	
Literacy Rate (ST)	6.77	
Literacy Rate (ST Male)	11.21	
Literacy Rate (ST Female)	2.32	
GENDER		
Sex Ratio (Rural)		1002
Sex Ratio (Urban)		933
Sex Ratio (All)	985	996
Sex Ratio (SC)	973	
Sex Ratio (ST)	1002	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.74	
Cropping intensity (2002-03)		121
Net sown area as percentage of total geographical area		21.97
Per capita output of foodgrain (in kg per annum)		147
Agricultural labour as percentage of total rural main workers		26.01
Cultivator as percentage of total rural main workers		57.68



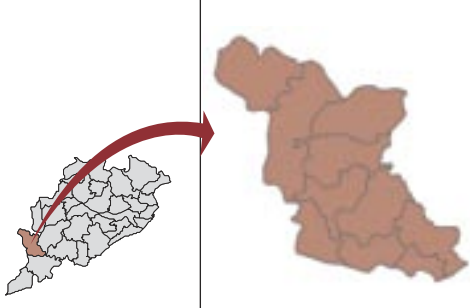


Mayurbhanj

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.639
HDI Rank		9
Gender Development Index (GDI)		0.621
GDI Rank		6
Reproductive Health Index (RHI) (98-99)		0.549
RHI Rank		17
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4297	
POPULATION	1991	2001
Total population (in lakh)	18.85	22.22
Share of state's population	5.95	6.05
Density of population (persons per square km)	181	213
Decadal growth of population (1981-91 and 1991-2001)	19.14	17.89
Urban population (in per cent)	6.17	6.99
SC population (in per cent)	6.99	
ST population (in per cent)	57.87	
HEALTH	1991	2001
Health Index Rank		1
Crude Birth Rate	33.30	
Doctors per one lakh population		12
No. of beds per one lakh population		36
EMPLOYMENT	1991	2001
WPR (Rural)	46.87	47.55
WPR (Urban)	29.89	30.69
WPR (All)	45.82	46.37
WPR (Female)	37	39.89
WPR (Male)	54.45	52.72
Share of primary sector in total main workers	81.70	
Share of secondary sector in total main workers	7.30	
Share of tertiary sector in total main workers	11.00	

DISTRICT INFORMATION	1991	2001
Area (in square km)	10418	
No. of CD Blocks	26	
No. of G.Ps	382	
Total no. of inhabited villages	3718	
Forest area as % of geographical area	42.13	
EDUCATION		
Education Index Rank		22
Literacy Rate (All)	37.88	52.43
Literacy Rate (Male)	51.84	66.38
Literacy Rate (Female)	23.68	38.28
Literacy Rate (SC)	37.79	
Literacy Rate (SC Male)	52.85	
Literacy Rate (SC Female)	22.12	
Literacy Rate (ST)	24.1	
Literacy Rate (ST Male)	37.72	
Literacy Rate (ST Female)	10.5	
GENDER		
Sex Ratio (Rural)		987
Sex Ratio (Urban)		895
Sex Ratio (All)	979	980
Sex Ratio (SC)	971	
Sex Ratio (ST)	996	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.24	
Cropping intensity (2002-03)		117
Net sown area as percentage of total geographical area		38.20
Per capita output of foodgrain (in kg per annum)		183
Agricultural labour as percentage of total rural main workers		38.51
Cultivator as percentage of total rural main workers		27.91





Nabarangpur

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.436
HDI Rank		26
Gender Development Index (GDI)		0.422
GDI Rank		25
Reproductive Health Index (RHI) (98-99)		0.484
RHI Rank		27
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	3787	
POPULATION	1991	2001
Total population (in lakh)	8.47	10.18
Share of state's population	2.68	2.77
Density of population (persons per square km)	160	192
Decadal growth of population (1981-91 and 1991-2001)	24.22	20.26
Urban population (in per cent)	4.97	5.82
SC population (in per cent)	15.09	
ST population (in per cent)	55.27	
HEALTH	1991	2001
Health Index Rank		23
Crude Birth Rate	34.30	
Doctors per one lakh population		10
No. of beds per one lakh population		23
EMPLOYMENT	1991	2001
WPR (Rural)	49.91	50.54
WPR (Urban)	31.92	32.64
WPR (All)	49.02	49.5
WPR (Female)	38.13	42.3
WPR (Male)	59.77	56.64
Share of primary sector in total main workers	88.60	
Share of secondary sector in total main workers	3.70	
Share of tertiary sector in total main workers	7.60	

DISTRICT INFORMATION	1991	2001
Area (in square km)	5291	
No. of CD Blocks	10	
No. of G.Ps	169	
Total no. of inhabited villages	880	
Forest area as % of geographical area	46.50	
EDUCATION		
Education Index Rank		29
Literacy Rate (All)	18.62	34.26
Literacy Rate (Male)	28.10	47.37
Literacy Rate (Female)	9.01	21.02
Literacy Rate (SC)	23.38	
Literacy Rate (SC Male)	34.08	
Literacy Rate (SC Female)	12.48	
Literacy Rate (ST)	9.66	
Literacy Rate (ST Male)	17.5	
Literacy Rate (ST Female)	1.8	
GENDER		
Sex Ratio (Rural)		997
Sex Ratio (Urban)		928
Sex Ratio (All)	989	992
Sex Ratio (SC)	979	
Sex Ratio (ST)	1001	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.25	
Cropping intensity (2002-03)		128
Net sown area as percentage of total geographical area		37.81
Per capita output of foodgrain (in kg per annum)		220
Agricultural labour as percentage of total rural main workers		52.38
Cultivator as percentage of total rural main workers		30.58



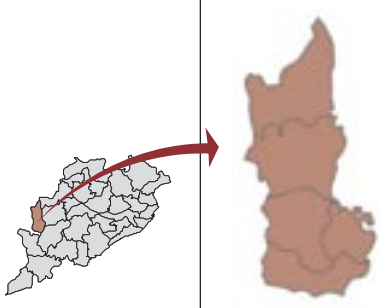


Nayagarh

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.571
HDI Rank		15
Gender Development Index (GDI)		0.452
GDI Rank		23
Reproductive Health Index (RHI) (98-99)		0.544
RHI Rank		18
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4236	
POPULATION	1991	2001
Total population (in lakh)	7.83	8.64
Share of state's population	2.47	2.35
Density of population (persons per square km)	151	179
Decadal growth of population (1981-91 and 1991-2001)	14.52	10.39
Urban population (in per cent)	3.35	4.29
SC population (in per cent)	13.78	
ST population (in per cent)	5.96	
HEALTH	1991	2001
Health Index Rank		16
Crude Birth Rate	28.1	
Doctors per one lakh population		12
No. of beds per one lakh population		57
EMPLOYMENT	1991	2001
WPR (Rural)	32.5	33.6
WPR (Urban)	25.9	28.35
WPR (All)	32.28	33.38
WPR (Female)	8.36	10.88
WPR (Male)	55.20	54.49
Share of primary sector in total main workers	79.40	
Share of secondary sector in total main workers	7.50	
Share of tertiary sector in total main workers	13.10	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3890	
No. of CD Blocks	8	
No. of G.Ps	179	
Total no. of inhabited villages	1511	
Forest area as % of geographical area	49.06	
EDUCATION		
Education Index Rank		11
Literacy Rate (All)	57.2	71.02
Literacy Rate (Male)	73	83.23
Literacy Rate (Female)	40.74	58.10
Literacy Rate (SC)	40.17	
Literacy Rate (SC Male)	57.52	
Literacy Rate (SC Female)	22.51	
Literacy Rate (ST)	32.05	
Literacy Rate (ST Male)	50.14	
Literacy Rate (ST Female)	13.88	
GENDER		
Sex Ratio (Rural)		940
Sex Ratio (Urban)		912
Sex Ratio (All)	958	939
Sex Ratio (SC)	983	
Sex Ratio (ST)	995	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	0.92	
Cropping intensity (2002-03)		150
Net sown area as percentage of total geographical area		29.25
Per capita output of foodgrain (in kg per annum)		138
Agricultural labour as percentage of total rural main workers		32.76
Cultivator as percentage of total rural main workers		29.50

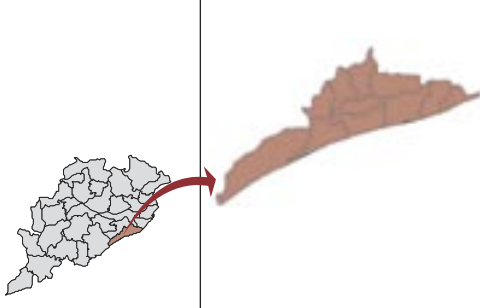




Nuapada

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.581
HDI Rank		14
Gender Development Index (GDI)		0.561
GDI Rank		9
Reproductive Health Index (RHI) (98-99)		0.495
RHI Rank		26
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4018	
POPULATION	1991	2001
Total population (in lakh)	4.69	5.31
Share of state's population	1.48	1.45
Density of population (persons per square km)	122	138
Decadal growth of population (1981-91 and 1991-2001)	19.56	13
Urban population (in per cent)	5.49	5.66
SC population (in per cent)	13.09	
ST population (in per cent)	35.95	
HEALTH	1991	2001
Health Index Rank		5
Crude Birth Rate	29.9	
Doctors per one lakh population		11
No. of beds per one lakh population		30
EMPLOYMENT	1991	2001
WPR (Rural)	46.42	46.89
WPR (Urban)	32.33	34.42
WPR (All)	45.65	46.18
WPR (Female)	31.49	35.83
WPR (Male)	59.84	55.52
Share of primary sector in total main workers	86.90	
Share of secondary sector in total main workers	4.70	
Share of tertiary sector in total main workers	8.40	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3852	
No. of CD Blocks	5	
No. of G.Ps	109	
Total no. of inhabited villages	643	
Forest area as % of geographical area	36.66	
EDUCATION		
Education Index Rank		25
Literacy Rate (All)	27.54	42.29
Literacy Rate (Male)	42.31	58.78
Literacy Rate (Female)	12.78	26.01
Literacy Rate (SC)	25.44	
Literacy Rate (SC Male)	40.74	
Literacy Rate (SC Female)	10.09	
Literacy Rate (ST)	18.49	
Literacy Rate (ST Male)	32	
Literacy Rate (ST Female)	5.18	
GENDER		
Sex Ratio (Rural)		1008
Sex Ratio (Urban)		969
Sex Ratio (All)	1002	1006
Sex Ratio (SC)	986	
Sex Ratio (ST)	1024	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.77	
Cropping intensity (2002-03)		118
Net sown area as percentage of total geographical area		49.27
Per capita output of foodgrain (in kg per annum)		69
Agricultural labour as percentage of total rural main workers		44.79
Cultivator as percentage of total rural main workers		32.94



Puri

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.657
HDI Rank		7
Gender Development Index (GDI)		0.516
GDI Rank		17
Reproductive Health Index (RHI) (98-99)		0.574
RHI Rank		10
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	4933	
POPULATION	1991	2001
Total population (in lakh)	13.05	14.99
Share of state's population	4.12	4.08
Density of population (persons per square km)	375	431
Decadal growth of population (1981-91 and 1991-2001)	18.08	14.8
Urban population (in per cent)	12.52	13.6
SC population (in per cent)	18.56	
ST population (in per cent)	0.27	
HEALTH	1991	2001
Health Index Rank		10
Crude Birth Rate	28.10	
Doctors per one lakh population		11
No. of beds per one lakh population		42
EMPLOYMENT	1991	2001
WPR (Rural)	29.58	30.06
WPR (Urban)	27.82	30.08
WPR (All)	29.36	30.06
WPR (Female)	6.05	7.54
WPR (Male)	51.96	51.87
Share of primary sector in total main workers	73.10	
Share of secondary sector in total main workers	5.50	
Share of tertiary sector in total main workers	21.30	

DISTRICT INFORMATION	1991	2001
Area (in square km)	3479	
No. of CD Blocks	11	
No. of G.Ps	230	
Total no. of inhabited villages	1584	
Forest area as % of geographical area	4.59	
EDUCATION		
Education Index Rank		3
Literacy Rate (All)	63.30	78.40
Literacy Rate (Male)	76.83	88.73
Literacy Rate (Female)	49.41	67.80
Literacy Rate (SC)	42.51	
Literacy Rate (SC Male)	58.61	
Literacy Rate (SC Female)	26	
Literacy Rate (ST)	38.94	
Literacy Rate (ST Male)	52.45	
Literacy Rate (ST Female)	22.77	
GENDER		
Sex Ratio (Rural)		976
Sex Ratio (Urban)		920
Sex Ratio (All)	970	968
Sex Ratio (SC)	973	
Sex Ratio (ST)	853	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	0.96	
Cropping intensity (2002-03)		165
Net sown area as percentage of total geographical area		49.18
Per capita output of foodgrain (in kg per annum)		121
Agricultural labour as percentage of total rural main workers		25.06
Cultivator as percentage of total rural main workers		34.99



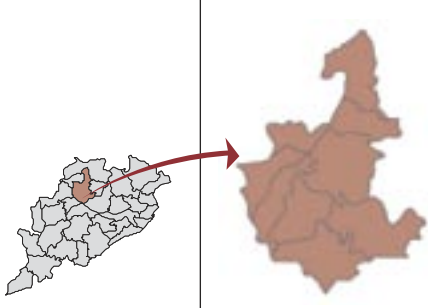


Rayagada

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.443
HDI Rank		25
Gender Development Index (GDI)		0.428
GDI Rank		24
Reproductive Health Index (RHI) (98-99)		0.584
RHI Rank		8
Per Capita GDP/Income in 1998-99 (at 1993-94 prices)	5300	
POPULATION	1991	2001
Total population (in lakh)	7.14	8.23
Share of state's population	2.26	2.24
Density of population (persons per square km)	101	116
Decadal growth of population (1981-91 and 1991-2001)	17.29	15.27
Urban population (in per cent)	12.51	14.02
SC population (in per cent)	14.28	
ST population (in per cent)	56.04	
HEALTH	1991	2001
Health Index Rank		26
Crude Birth Rate	34.30	
Doctors per one lakh population		13
No. of beds per one lakh population		27
EMPLOYMENT	1991	2001
WPR (Rural)	51.4	50.73
WPR (Urban)	31.39	31.81
WPR (All)	48.89	48.08
WPR (Female)	37.9	41.3
WPR (Male)	60.01	55.06
Share of primary sector in total main workers	82.90	
Share of secondary sector in total main workers	5.00	
Share of tertiary sector in total main workers	12.10	

DISTRICT INFORMATION	1991	2001
Area (in square km)	7073	
No. of CD Blocks	11	
No. of G.Ps	171	
Total no. of inhabited villages	2445	
Forest area as % of geographical area	37.07	
EDUCATION		
Education Index Rank		28
Literacy Rate (All)	26.01	35.61
Literacy Rate (Male)	36.53	47.35
Literacy Rate (Female)	15.63	24.31
Literacy Rate (SC)	21.46	
Literacy Rate (SC Male)	33.63	
Literacy Rate (SC Female)	9.49	
Literacy Rate (ST)	10.39	
Literacy Rate (ST Male)	17.73	
Literacy Rate (ST Female)	3.40	
GENDER		
Sex Ratio (Rural)		1039
Sex Ratio (Urban)		969
Sex Ratio (All)	1012	1029
Sex Ratio (SC)	1010	
Sex Ratio (ST)	1043	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.50	
Cropping intensity (2002-03)		136
Net sown area as percentage of total geographical area		21.64
Per capita output of foodgrain (in kg per annum)		124
Agricultural labour as percentage of total rural main workers		45.98
Cultivator as percentage of total rural main workers		29.40



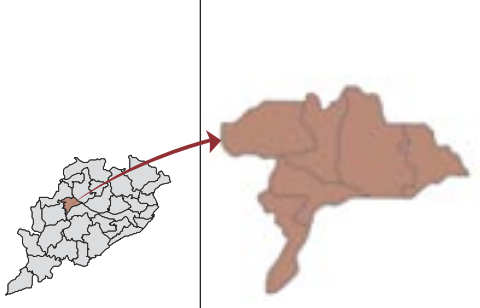


Sambalpur

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.589
HDI Rank		13
Gender Development Index (GDI)		0.56
GDI Rank		10
Reproductive Health Index (RHI) (98-99)		0.592
RHI Rank		6
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	6171	
POPULATION	1991	2001
Total population (in lakh)	8.14	9.29
Share of state's population	2.57	2.53
Density of population (persons per square km)	122	140
Decadal growth of population (1981-91 and 1991-2001)	18.47	14.17
Urban population (in per cent)	25.40	27.37
SC population (in per cent)	17.07	
ST population (in per cent)	35.08	
HEALTH	1991	2001
Health Index Rank		19
Crude Birth Rate	27.9	
Doctors per one lakh population		43
No. of beds per one lakh population		123
EMPLOYMENT	1991	2001
WPR (Rural)	48.67	50.5
WPR (Urban)	30.72	30.95
WPR (All)	44.14	45.15
WPR (Female)	32	35.58
WPR (Male)	55.74	54.43
Share of primary sector in total main workers	69.30	
Share of secondary sector in total main workers	11.70	
Share of tertiary sector in total main workers	18.90	

DISTRICT INFORMATION	1991	2001
Area (in square km)	6657	
No. of CD Blocks	9	
No. of G.Ps	148	
Total no. of inhabited villages	1247	
Forest area as % of geographical area	54.18	
EDUCATION		
Education Index Rank		13
Literacy Rate (All)	51.52	67.01
Literacy Rate (Male)	65.9	78.87
Literacy Rate (Female)	36.43	54.79
Literacy Rate (SC)	41.44	
Literacy Rate (SC Male)	58.46	
Literacy Rate (SC Female)	23.91	
Literacy Rate (ST)	32.06	
Literacy Rate (ST Male)	47.10	
Literacy Rate (ST Female)	16.83	
GENDER		
Sex Ratio (Rural)		988
Sex Ratio (Urban)		924
Sex Ratio (All)	956	970
Sex Ratio (SC)	972	
Sex Ratio (ST)	989	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.65	
Cropping intensity (2002-03)		124
Net sown area as percentage of total geographical area		25.37
Per capita output of foodgrain (in kg per annum)		109
Agricultural labour as percentage of total rural main workers		31.94
Cultivator as percentage of total rural main workers		21.72



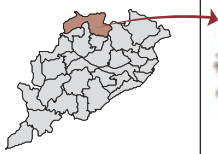


Sonepur

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.566
HDI Rank		16
Gender Development Index (GDI)		0.543
GDI Rank		11
Reproductive Health Index (RHI) (98-99)		0.591
RHI Rank		7
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)		4353
POPULATION	1991	2001
Total population (in lakh)	4.77	5.41
Share of state's population	1.51	1.47
Density of population (persons per square km)	204	231
Decadal growth of population (1981-91 and 1991-2001)	19.99	13.39
Urban population (in per cent)	7.30	7.41
SC population (in per cent)	22.11	
ST population (in per cent)	9.50	
HEALTH	1991	2001
Health Index Rank		13
Crude Birth Rate	29.00	
Doctors per one lakh population		11
No. of beds per one lakh population		28
EMPLOYMENT	1991	2001
WPR (Rural)	44.59	44.59
WPR (Urban)	37.2	33.03
WPR (All)	44.05	43.73
WPR (Female)	30.14	32.89
WPR (Male)	57.66	54.2
Share of primary sector in total main workers	83.60	
Share of secondary sector in total main workers	8.20	
Share of tertiary sector in total main workers	8.20	

DISTRICT INFORMATION	1991	2001
Area (in square km)		2337
No. of CD Blocks	6	
No. of G.Ps	96	
Total no. of inhabited villages	808	
Forest area as % of geographical area	17.52	
EDUCATION		
Education Index Rank		15
Literacy Rate (All)	42.62	64.07
Literacy Rate (Male)	61.48	80.3
Literacy Rate (Female)	23.38	47.28
Literacy Rate (SC)	32.7	
Literacy Rate (SC Male)	51.12	
Literacy Rate (SC Female)	14.12	
Literacy Rate (ST)	27.42	
Literacy Rate (ST Male)	43.42	
Literacy Rate (ST Female)	11.38	
GENDER		
Sex Ratio (Rural)		969
Sex Ratio (Urban)		926
Sex Ratio (All)	979	966
Sex Ratio (SC)	990	
Sex Ratio (ST)	988	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census		1.36
Cropping intensity (2002-03)		156
Net sown area as percentage of total geographical area		45.3
Per capita output of foodgrain (in kg per annum)		253
Agricultural labour as percentage of total rural main workers		44.96
Cultivator as percentage of total rural main workers		32.46





Sundargarh

HUMAN DEVELOPMENT INDICES	1991	2001
Human Development Index (HDI)		0.683
HDI Rank		4
Gender Development Index (GDI)		0.659
GDI Rank		2
Reproductive Health Index (RHI) (98-99)		0.628
RHI Rank		3
Per Capita DDP/Income in 1998-99 (at 1993-94 prices)	6823	
POPULATION	1991	2001
Total population (in lakh)	15.74	18.29
Share of state's population	4.97	4.98
Density of population (persons per square km)	162	188
Decadal growth of population (1981-91 and 1991-2001)	17.62	16.26
Urban population (in per cent)	33.36	34.38
SC population (in per cent)	8.78	
ST population (in per cent)	50.74	
HEALTH	1991	2001
Health Index Rank		6
Crude Birth Rate	29.30	
Doctors per one lakh population		12
No. of beds per one lakh population		33
EMPLOYMENT	1991	2001
WPR (Rural)	44.88	46.72
WPR (Urban)	28.58	28.52
WPR (All)	39.44	40.47
WPR (Female)	24.8	28.93
WPR (Male)	53.15	51.5
Share of primary sector in total main workers	61.60	
Share of secondary sector in total main workers	16.40	
Share of tertiary sector in total main workers	22.00	

DISTRICT INFORMATION	1991	2001
Area (in square km)	9712	
No. of CD Blocks	17	
No. of G.Ps	262	
Total no. of inhabited villages	1688	
Forest area as % of geographical area	51.08	
EDUCATION		
Education Index Rank		14
Literacy Rate (All)	52.97	65.22
Literacy Rate (Male)	65.41	75.69
Literacy Rate (Female)	39.6	54.25
Literacy Rate (SC)	43.86	
Literacy Rate (SC Male)	58.72	
Literacy Rate (SC Female)	28.15	
Literacy Rate (ST)	37.34	
Literacy Rate (ST Male)	50.13	
Literacy Rate (ST Female)	24.52	
GENDER		
Sex Ratio (Rural)		994
Sex Ratio (Urban)		889
Sex Ratio (All)	936	957
Sex Ratio (SC)	954	
Sex Ratio (ST)	996	
AGRICULTURE	1991	2001
Average size of operational holdings (in hectares) as per 1995 Census	1.55	
Cropping intensity (2002-03)		129
Net sown area as percentage of total geographical area		30.28
Per capita output of foodgrain (in kg per annum)		75
Agricultural labour as percentage of total rural main workers		29.78
Cultivator as percentage of total rural main workers		29.6





References

- Administrative Staff College of India (ASCI) (1999), *Burden of Disease for Orissa*, Centre for Social Services, British Council Division, British High Commission, Hyderabad and Department of Health & Family Welfare, Government of Orissa.
- Agnihotri, Satish B. (2002), 'Changes in Sex Ratio Patterns in Orissa: 1991–2001—Is there an Epicentre of Female Deficit?', *Demography India*, Vol. 31, No. 2, pp. 180–94.
- Ahmad, Qazi Kholiquzzaman (1986), 'Diversification of the Rural Economy and Employment Generation in Non-Farm Sectors', in Marga Institute, *Transforming Rural Livelihoods—A Search for Asian Alternatives*, McGraw Hill, Colombo, Sri Lanka.
- Aich, B.N. (1999), 'Natural Calamities—Mitigation and Management', in A.D. Mukhopadhyaya, K.K. Dutta and P. Sanyal (eds), *Disaster Management*, Jadavpur University, Calcutta.
- All India Democratic Women's Association (AIDWA) (2002), *Perspectives, Interventions and Struggles (1998–2001)*, AIDWA, New Delhi.
- Arumugam, V. (1999), 'Human Development Index: A Study of Districts in Tamil Nadu', *Yojana*, Vol. 43, No. 7, pp. 34–36.
- Arya, Ananda S. (2003), 'Editorial Introduction', *Regional Development Dialogue*, Vol. 24, No. 1, Spring, pp. V–XII.
- Basu, P.K. (1999), 'Natural Disaster Preparedness', in A.D. Mukhopadhyaya, K.K. Dutta and P. Sanyal (eds), *Disaster Management*, Jadavpur University, Calcutta.
- Behera, Aurobindo, Prafulla Mishra and Sneha Mishra (eds) (2002), *Voicing Silence: Experience of Women with Disaster in Orissa*, Orissa State Disaster Mitigation Authority, Bhubaneswar.
- Behura, N.K. and R.P. Mohanty (1998), 'Socio-Economic Profile of Street Children in Bhubaneswar City', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Bernstein, Henry, Ben Crow and Hazel Johnson (eds) (1992), *Rural Livelihoods—Crises and Responses*, Oxford University Press, Oxford.
- Bhatta, Braja Bandhu (1997), *The Natural Calamities in Orissa in the 19th Century*, Commonwealth Publishers, New Delhi.
- Colclough, Christopher (1982), 'The Impact of Primary Schooling on Economic Development: A Review of the Evidence', *World Development*, Vol. 10, No. 3, pp. 167–85.
- Council of Higher Secondary Education, Orissa, *Annual Report, 2001–02*, Bhubaneswar.
- D'Souza, Rohan (2000), 'Colonialism, Capitalism and Nature: Debating the Origins of Mahanadi Delta's Hydraulic Crisis (1803–1928)', *Economic and Political Weekly*, Vol. 37, No. 13, 30 March, pp. 1261–72.
- Das, Urmimala (1994a), 'Aetiology of Gender Gap in Political Representation of Orissa', *Orissa Review*, Vol. 50, No. 6, January, pp. 5–9.
- (1994b), 'Odishare Nari Nirjatana', *Bikalpa Bichara*, Vol. 2, No. 4. October–December, pp. 40–49.



- (1995), 'Violence Against Women', *Orissa Review*, Vol. 51, No. 9, April, pp. 18–22.
- Das, Urmimala and Bibekananda Das (1991), 'Dowry Deaths in Orissa', mimeo, Short Report No. 1, Women's Studies Research Centre, Berhampur University, Berhampur.
- (1992), 'Rape Violence in Orissa', mimeo, Women's Studies Centre, Berhampur University, Berhampur.
- (1993), 'Women Victims of Police Atrocities in Orissa', mimeo, Short Report No. 4, Women's Studies Centre, Berhampur University, Berhampur.
- Das Mohapatra, Lalatendu (1997), 'Economic Life of Orissa During Afgan Mughal and Maratha Rule', in Nihar R. Patnaik (ed.), *Economic History of Orissa*, Indus Publishing Company, New Delhi, pp. 151–77.
- de Haan, Arjan and Amaresh Dubey (2003), 'Poverty in Orissa: Divergent Trends? With Some Thoughts on Measurement Issues', mimeo, paper presented at the Workshop on 'Monitoring of Poverty in Orissa', 26–27 February, Bhubaneswar.
- Dharmaraj, Jacob (1996), 'Mobilizing Community Participation in Disaster Management', mimeo, PREPARE, Madras.
- Dreze, Jean and Amartya Sen (1989), *Hunger and Public Action*, Oxford University Press, New York.
- (1990), 'Introduction', in J. Dreze and A. Sen (eds), *The Political Economy of Hunger*, Vol. 1, Clarendon Press, Oxford, chapter 1, pp. 1–11.
- (1995), *India: Economic Development and Social Opportunity*, Oxford University Press, Delhi.
- Education Commission (1968), *Education for Development Report of the Education Commission 1964–66*, National Council of Educational Research and Training, New Delhi [Reprint 1971].
- Ellis, Frank (1998), 'Household Strategies and Rural Livelihood Diversification', *The Journal of Development Studies*, Vol. 35, No. 1, October, pp. 1–38.
- EPW Research Foundation (1998), *National Account Statistics of India (1950–51 to 1996–97)*, Mumbai.
- (2003), *Domestic Products of States of India: 1960/61–2000/01*, Mumbai.
- Forest Survey of India, *The State of Forest Report 1991, 1995, 1996*, Dehradun.
- Freeman, Paul K., Michael Keen and Muthukumara Mani (2003), 'Being Prepared', *Finance and Development*, Vol. 40, No. 3, International Monetary Fund, September, pp. 42–45.
- Government of India (1966), *Education and National Development Report of the Education Commission (Kothari Committee), 1964–66*, Ministry of Education, New Delhi.
- (1982), *Report of the Committee on Forest and Tribals in India*, Tribal Development Division, Ministry of Home Affairs, Government of India, New Delhi.
- (1991), *Report of the Committee for Review of National Policy on Education (NPE) (Ramamoorthy Committee)*, Ministry of Education, New Delhi.
- (1992), *Morbidity and Utilisation of Health Care Services, NSS, 42nd Round (1986–87)*, *Sarvekshana*, 61st Issue, April–June.
- (1994), *Sample Registration System Bulletin*, Vol. XXVII, No. 1, January, Registrar General of India, New Delhi.



- (1995), *Bulletin on Rural Health Statistics in India for the Quarter Ending December 1994*, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi.
- (1996), *Report on Participation in Education, 52nd Round, 1995–96*, National Sample Survey Organisation (NSSO), Ministry of Statistics, Planning, and Programme Implementation, New Delhi.
- (1997a), *Sarvekshana*, Vol. XXI, No. 2, 73rd Issue, October–December (NSS 50th Round, 1993–94), Ministry of Statistics, Planning and Programme Implementation, Department of Statistics, New Delhi.
- (1997b), *Survey of Causes of Death (Rural): Annual Report, Series-3, No. 30*, Office of the Registrar General, New Delhi.
- (1999a), *Compendium of India's Fertility and Mortality Indicators 1971–1997 [Based on the Sample Registration System (SRS)]*, Registrar General of India, New Delhi.
- (1999b), *Expert Group Report on Financial Requirements for Making Elementary Education a Fundamental Right*, Ministry of Human Resource Development, New Delhi.
- (1999c), *Malaria and Its Control in India—Country Scenario*, National Anti-Malaria Programme, Directorate General of Health Services, New Delhi.
- (1999d), *Rapid Household Survey RCH Project Phase II*, Mode Research Pvt. Ltd. for the Ministry of Health and Family Welfare, New Delhi.
- (1999e), *Sample Registration System Statistical Report 1998*, Registrar General of India, New Delhi.
- (2001a), *Census of India: Provisional Population Totals, Series-22: Orissa*, Directorate of Census Operations, Orissa.
- (2001b), *Sample Registration System Bulletin*, Vol. 35, No. 2, Registrar General of India, New Delhi, other volumes and various issues.
- (2002a), *Economic Survey 2001–02*, Economic Division, Ministry of Finance, New Delhi.
- (2002b), *National Human Development Report, 2001*, Planning Commission, Oxford University Press, New Delhi.
- (2002c), *Orissa Development Report*, Planning Commission, New Delhi, prepared by Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (2003), *Economic Survey 2002–03*, Economic Division, Ministry of Finance, New Delhi.
- , *Birth Rate, Death Rate, Infant Mortality Rate and Total Fertility Rate: India and States, 1971–1999*, National Commission on Population, New Delhi.
- , *Bulletin on Food Statistics*, Ministry of Agriculture, New Delhi, various issues.
- , *Causes of Death (Rural), India*, Annual Report, Registrar General of India, various years.
- , *Census of India, Orissa, 1971, 1981, 1991*, Office of the Registrar General, Bhubaneswar.
- , *Census of India*, Office of the Registrar General and Census Commissioner, Tables on Scheduled Castes and Scheduled Tribes, Directorate of Census Operation, Orissa.
- , *Economic Survey*, Economic Division, Ministry of Finance, New Delhi, various years.
- , *Health Information of India*, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi, various years.

- , *Selected Educational Statistics*, Department of Education, Ministry of Human Resource Development, New Delhi, various years.
- Government of Orissa (1980), *The Orissa Relief Code*, (corrected upto December 1996), Revenue Department, Board of Revenue (Special Relief).
- (1995a), *Education in Orissa: 1995–96, Orissa State Plan of Action for Children 2001 AD*, Department of Woman and Child Development, Bhubaneswar.
- (1995b), *Report on the Census of Employees in the Public Sector in Orissa*, Directorate of Economics and Statistics, Planning and Co-ordination Department, Bhubaneswar.
- (1996), *District Gazetteer: Cuttack*, Government Printing Press, Cuttack.
- (1997), *Orissa State Policy on Primary Education as Human Resource Development*, School and Mass Education Department, Government of Orissa.
- (1998a), *Agricultural Statistics of Orissa 1995–96*, Directorate of Agriculture and Food Production, Bhubaneswar.
- (1998b), *Health Statistics of Orissa*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar.
- (1999), *District Domestic Product of Thirty Districts of Orissa, 1993/94–1998/99 (1993–94 base), Summary Results*, Directorate of Economics and Statistics, District Income Cell, Bhubaneswar, Orissa.
- (2000a), *Estimates of State Domestic Product: 1950–51 to 1993–94 (1980–81 base)*, Directorate of Economics and Statistics, Planning and Co-ordination Department, Bhubaneswar.
- (2000b), *Report of the Sixth All India Educational Survey, Orissa 1993*, Directorate of Elementary Education, Bhubaneswar.
- (2000c), 'White Paper on Super-Cyclone in Orissa', Revenue Department, June.
- (2001a), *Economic Survey 2000–01*, Directorate of Economics and Statistics, Planning and Co-ordination Department, Bhubaneswar.
- (2001b), *Report on Time Use Survey*, Directorate of Economics and Statistics, Planning and Co-ordination Department, Bhubaneswar.
- (2001c), *The Industrial Compendium, 1999–2001*, Directorate of Industries, Cuttack.
- (2002a), *Draft Tenth Five Year Plan, 2002–2007, Vol. I*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, August.
- (2002b), *Economic Survey, 2001–02*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.
- (2002c), *Health Statistics 2000–01*, State Bureau of Health Intelligence, Directorate of Health Services, Bhubaneswar.
- (2002d), *Labour Statistics in Orissa 2001*, Labour Commission, Bhubaneswar.
- (2002e), *Orissa 2020—An Educational Vision*, Directorate of Elementary Education, Bhubaneswar.
- (2002f), 'Orissa Vision 2010—A Health Strategy: Orissa State Integrated Health Policy, Strategies and Action Points', Department of Health & Family Welfare, Bhubaneswar.
- (2002g), 'Activities of State AIDS Cell', State AIDS Cell, Bhubaneswar.



- (2003a), 'Disaster Management Policy, Final Draft', Orissa State Disaster Mitigation Authority, Bhubaneswar, 30 January.
- (2003b), *Economic Survey 2002–03*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar.
- (2003c), *Budget at a Glance 2002–2003*, Finance Department, Government of Orissa.
- (2004a), *Labour Statistics in Orissa, 2003*, Labour Commission, Bhubaneswar.
- (2004b), *Women Legislatures in Orissa Legislative Assembly, 1937–90*, Orissa Legislative Assembly, Bhubaneswar.
- , *Agricultural Statistics of Orissa*, Directorate of Agriculture and Food Production, Bhubaneswar, various years.
- , *Analysis of Budgeted Expenditure on Education*, Ministry of Human Resource Development, Bhubaneswar, various years.
- , *Demand for Grants*, Finance Department, Bhubaneswar, various years.
- , *Economic Survey*, Directorate of Economics and Statistics, Planning and Coordination Department, Bhubaneswar, various issues.
- , *Finance Accounts*, Finance Department, Bhubaneswar, various years.
- , *Health and Family Planning 2000–2001*, Directorate of Health and Family Planning, Bhubaneswar.
- , *Official Directory: Orissa*, 101st Edition, corrected upto 31st July, 2003, Governor's Secretariat, Raj Bhavan, Bhubaneswar.
- , *Monitoring Forests of Orissa by Remote Sensing*, Orissa Remote Sensing Application Centre, Department of Science, Technology and Environment.
- , *Monthly Reports*, Woman and Child Development Department, Bhubaneswar.
- , *Statistical Information on General Election to the Orissa Legislative Assembly, 1990, 1995, and 2000*, Orissa Legislative Assembly, Bhubaneswar.
- Govinda, R. (2003), 'Basic Education: Making It Work for the Poor Experience from the South', in National Institute of Educational Planning and Administration (NIEPA) (ed.), *Globalisation and Challenges for Education*, Sipra Publications, New Delhi, Chapter I, pp. 1–26.
- Gupta, Aparna (2000), 'Disaster Prevention and Mitigation: Some Reflections', Paper presented in the National Conference on Funding Disaster Prevention and Mitigation, National Institute of Rural Development, Hyderabad, 19–20 December.
- Hanushek, Eric A. (1995), 'Interpreting Recent Research on Schooling in Developing Countries', *The World Bank Research Observer*, Vol. 10, No. 2, pp. 227–40.
- Haq, Mahabub ul (1996), *Reflections on Human Development*, Oxford University Press, Delhi.
- Harris, Nigel, Colin Rosser and Sunil Kumar (1996), *Jobs for the Poor: A Case Study in Cuttack*, Research Press, New Delhi.
- Hirway, Indira, Piet Terhal, G.C. Kar, Shibalal Meher, Shital Lodhia, and G.K. Mitra (2003), 'Environment, Employment and Sustainable Development: A Study in Three States', A project sponsored by the Indo-Dutch Programme on Alternatives in Development and Indian Council of Social Science Research (ICSSR) and carried out by the Centre for Development Alternatives, Ahmedabad, June.

- Indian Council of Social Science Research (ICSSR) and Indian Council of Medical Research (ICMR) (1981), *Health for All: An Alternative Strategy*, Indian Institute of Education, Pune.
- Institute of Social Sciences (ISS) (2001), 'Women Representatives in Panchayats', mimeo, Institute of Social Sciences, Eastern Regional Office, Bhubaneswar.
- Institute for Social and Economic Development (ISED) (1992), *Women and Social Forestry: A Study on Role and Participation of Women in Social Forestry Programmes in Orissa and M.P.*, Vol. 1, Bhubaneswar.
- International Institute for Population Sciences (IIPS) (1995), *National Family Health Survey 1992–93: Orissa*, Mumbai.
- International Institute for Population Sciences (IIPS) and ORC Macro (2001), *National Family Health Survey (NFHS-2), India, 1998–99: Orissa*, IIPS, Mumbai.
- International Labour Organisation (ILO) (1998), *Showing the Way: Trade Unions Against Child Labour in India*, International Labour Organisation, New Delhi.
- (1990), *Strategies for the Involvement of Landless and Women in Afforestation: Five Case Studies from India*, International Labour Organisation, Geneva.
- International Monetary Fund (IMF) (2003), 'Picture This: Hit by Disaster', *Finance and Development*, Vol. 40, No. 3, September, pp. 40–41.
- Irudayarajan, S. and P. Mohanachandran (1998), 'Infant and Child Mortality Estimates: Part I', *Economic and Political Weekly*, Vol. XXXIII, No. 19, 9–15 May.
- Jalan, Bimal (1992), *India's Economic Policy: Preparing for the Twenty-first Century*, Penguin India books (Pvt) Ltd., New Delhi.
- Jonsson, S. and A. Rai (eds) (1994), *Forests and Protection: Case Studies of Voluntary Forest Protection by Communities in Orissa*, New Delhi, ISO/Swed Forest and SIDA.
- Joshep, Cherian and K.V.E. Prasad (eds) (1995), *Women, Work and Inequality: The Reality of Gender*, National Labour Institute, New Delhi, 'Introduction'.
- Kar, G.C. (2001), 'Evaluation Study of National Child Labour Project (NCLP) Special Schools' (Report submitted to V. V. Giri National Labour Institute, Noida, UP), Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Kar, G.C., M. Behera and R.P. Mohanty (2002), 'Vocational Education in Orissa—State Report' (Report prepared for the Directorate of Vocational Education, Government of Orissa, Bhubaneswar), Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Karat, Brinda (2003), 'Reservation Rites: Women as Political Extras', *The Times of India*, Bhubaneswar, 22 July.
- Kennedy, Eileen (2002), 'Keynote: Qualitative Measures of Food Insecurity and Hunger', prepared for International Scientific Symposium on Measurement and Assessment of Food Deprivation and Undernutrition, Rome, 26–28 June.
- Khandker, Shahidur R., Hussain A. Samad and Zaheed H. Khan (1998), 'Income and Employment Effects of Micro-Credit Programmes: Village-level Evidence from Bangladesh', *The Journal of Development Studies*, Vol. 35, No. 2, December, pp. 96–124.
- King, Elizabeth M. and Peter F. Orazem (1999), 'Evaluating Education Reform: Four Cases in Developing Countries', *The World Bank Economic Review*, Vol. 13, No. 3, pp. 409–13.



- Klasen, Stephen (2002), 'Low Schooling for Girls, Slower Growth for All? Cross Country Evidence on the Effect of Gender Inequality in Education and Economic Development', *The World Bank Economic Review*, Vol. 16, No. 3, pp. 345–73.
- Kulke, H. (1986), 'Jagannatha as the State Deity under the Gajapatis of Orissa', in A. Eshmann, H. Kulke and G. C. Tripathi (eds), *The Cult of Jagannath and the Regional Tradition of Orissa*, Manohar, New Delhi, pp. 199–208.
- Kumari, Ranjana (1989), *Women Headed Households in rural India*, Radiant Publishers, New Delhi.
- Kundu, M. (2000), *Interim Report on Introduction of Ol – Chiki Script in Primary Schools of Mayurbhanj District of Orissa*, Academy of Tribal Dialects and Cultures, Bhubaneswar.
- M.S. Swaminathan (2000), 'Community-Led Approaches to Ending, Food Insecurity and Poverty', Public Lecture at the International Fund for Agricultural Development (IFAD) Rome, 12 September.
- M.S. Swaminathan Research Foundation and World Food Programme (2001), *Food Insecurity Atlas of Rural India*, M. S. Swaminathan Research Foundation, Chennai.
- Mahendra Dev, S. (2003), 'Right to Food in India', Working Paper No. 50, Centre for Economic and Social Studies, Hyderabad, August.
- Majumdar, K. (1997), 'Tribal Life in British Orissa', in P.K. Mishra and J.K. Samal (eds), *Comprehensive History and Culture of Orissa*, Kaveri Books, New Delhi.
- Mallik, R.M. (1992), 'Fuel Energy Crisis in Household Sector: A Study of Selected Regions in Orissa', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (1994), 'Study of Some Minor Forest Produce in Orissa: An Empirical Investigation', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (1996), 'Procurement and Marketing of Kendu Leaves in Orissa: A Study of Economic deprivation and Benefits to Primary Collectors', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (2000), 'Impact of NTFP-Policies on Sustainable Livelihood of Forest-Dependent Communities in Orissa: An Empirical Exercise', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (2001), Processing of NTFP-based Value added Products in Orissa: Opportunities and Challenges, *Journal of Rural Development*, Vol. 20, No. 2, pp. 299–320.
- Mallik, R.M and N. Panigrahi (1998), 'Non-Timber Forest Produce Collection: Benefits and Management', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Mallik, R.M., T.P. Singh, and V. Varalaxmi (1998), 'Study of Domestic and Commercial Use including Marketing of NTFPs', Research report submitted to SCC SCANDIACONSULT NATURA, and carried out by the Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Mari Bhat, P.N. and Francis Xavier (1993), 'Findings of National Family Health Survey: Regional Analysis', *Economic and Political Weekly*, Vol. XXXIV, No. 42 and 43, October 16–22 and 23–29.
- Meher, R.K. (1997), 'Child Workers in School Uniforms: Evaluation of National Child Labour Project in Kalahandi District of Orissa', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.



- Meher, Shiblal (2002a), 'Fiscal Imbalances: Dimensions, Issues and Implications', in Government of India, *Orissa Development Report*, Planning Commission, New Delhi.
- (2002b), 'Fiscal Crisis and Compression of Budgetary Expenditure: Probable Impact on Growth and Poverty in Orissa', Background paper prepared for the Poverty Task Force of the State Government, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Mishra, G.C. (2001), 'Role of Forest Management and NTFP in Tribal Development Strategy', *Vision*, Vol. XX, No. 3–4, January–June.
- Mishra, P.K. (1997), 'An Evaluation of National Child Labour Project: Malkangiri District, Orissa', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Mishra, Rashmi (2004), 'Gender Equity and Empowerment of Women in Orissa: Current Trends and Direction for Future Growth', in S.N. Misra (eds), *Indian Economy and Socio-economic Transformation: Emerging Issues and Problems*, Deep & Deep Publications Pvt. Ltd., New Delhi.
- Mishra, Rudranarayan (2003), 'Patterns and Determinants of Undernutrition among Women and Child in Orissa: Evidence from NFHS-2, 1989–99', Unpublished M. Phil. Dissertation submitted to Jawaharlal Nehru University, New Delhi.
- Misra, S.N. and M. Behera (2000), *A Comparative Study of Nutritional Support to Primary Education (Mid-day Meals Scheme) in Orissa and Tamil Nadu* (Project Report Prepared for the Planning Commission, Government of India), Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Misra, S.N. and S. Meher (1997), 'Freedom from Hunger: A Study of Begunia Block in Khurda District', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Mitra, Arup (2001), 'Employment in the Informal Sector', in Amitabh Kundu and Alakh N. Sharma (eds), *Informal Sector in India—Perspectives and Policies*, Institute for Human Development, New Delhi.
- Mohapatra, B.P. (1997), 'Synthesis of Tribal and Oriya Language', in P.K. Mishra and J.K. Samal (eds), *Comprehensive History and Culture of Orissa*, Kaveri Books, New Delhi.
- National Bank for Agriculture and Rural Development (NABARD) (2001), *Annual Report, 2001*, Mumbai.
- National Commission for Women (2001a), 'A Decade of Endeavour (1990–2000)', New Delhi.
- (2001b), 'Report of the Regional Workshops on Gender and Law Enforcement', Bangalore, 21–22 April.
- National Institute of Applied Human Research & Development (2001), *Study of Social Factors Contributing to Maternal Mortality*, Orissa State Report, Cuttack
- Nayak, Birendra (ed.) (2002), *Odishare Samudrika Batya: Tathya, Suchana O' Abhinggayata*, Biparjaya Mukabila Ganasammukhya, Bhubaneswar.
- Nayak, Birendra and Debi Prasad Das (eds) (2000), *Odiya and Odisha Samikhya 2000*, Bikalpa Sandhani Mancha, Bhubaneswar.
- National Council of Applied Economic Research (NCAER) (2000), 'Concurrent Evaluation of Integrated Child Development Services: Orissa', mimeo, NCAER, New Delhi, June.
- O'Malley, L.S.S. (1984), *Puri—A Gazetteer*, Usha Publications, New Delhi, p. 28.
- O'Neill, June (2003), 'The Gender Gap in Wages, Circa 2000', *The American Economic Review*, Vol. 93, No. 2, May, pp. 309–10.
- Okazaki, Kenji and Rajib Shaw (2003), 'Empowerment of People for Sustainable Disaster Mitigation:



- Experience of Developing Countries', *Regional Development Dialogue*, Vol. 24, No. 1, Spring, pp. 1–14.
- ORG Centre for Social Research (n.d.), 'Evaluation Study of Targeted Public Distribution System (TPDS) and Antyodaya Anna Yojana (AAY), State: Orissa', Draft Report submitted to Ministry of Consumer Affairs, Food and Public Distribution, New Delhi.
- Orissa Disaster Mitigation Mission (ODMM) (2001), *Civil Society and Natural Disaster*, Report of Orissa Disaster Mitigation Mission, edited by P. Nanda, Bhubaneswar.
- Orissa State Disaster Mitigation Authority (OSDMA) (2001–02), *Annual Report*, OSDMA, Bhubaneswar.
- (OSDMA) (2003), 'The Response', *Quarterly Newsletter*, Vol. 2, Issue 4, January–March, OSDMA, Bhubaneswar.
- Orissa State Disaster Mitigation Authority (OSDMA) and United Nations Organisation (UNO) (n.d.), *Community Contingency Plan for Flood and Cyclone: Orissa*, OSDMA and UNO, Bhubaneswar.
- Orissa Voluntary Health Association (1995), *Status of Health in Orissa 1995*, Prepared by Almas Ali and Shikha Nayak, Information and Documentation Cell, Bhubaneswar.
- Oxfam (2000), *Village Contingency Plan for Cyclones*, Bookline, Hyderabad.
- Padhi, M. (2004), *Government Initiatives for Quality Elementary Education in Orissa*, paper presented at a Workshop organised by Department of School and Mass Education, Government of Orissa in collaboration with UNICEF, Orissa on 19–20 February, 2004 at New Delhi.
- Padhi, Sakti (2000), 'Orissa Economy: A Database', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, December.
- Padhi, Sakti and Srijit Mishra (2000), 'Premature Mortality, Health Status and Public Health Care Facilities in Orissa: A Case Study in Accessibility and Utilisation', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Pal, Saroj K. (1998), *Fifty Years of Independence: 1947–97, States, Growth and Development (Drought)*, B.R. Publishing Corporation, Delhi.
- Panda, J. (2004), 'Reform Imperatives that Matter', paper presented at a Workshop organised by Department of School and Mass Education, Government of Orissa in collaboration with UNICEF, Orissa on 19–20 February 2004, at New Delhi.
- Panda, Pradeep Kumar (1998), 'The Elderly in Rural Orissa: Alone in Distress', *Economic and Political Weekly*, Vol. 33, No. 25, 20–26 June, pp. 1545–50.
- Pandey, Balaji (1998), *Depriving the Underprivileged for Development*, Institute for Socio-Economic Development, Bhubaneswar.
- Pandey, Balaji, Damodar Jena and Sugata Mohanty (2002), *Trafficking in Women in Orissa: An Explorative Study*, Institute for Socio-Economic Development, Bhubaneswar.
- Pathy, Suguna (2003), 'Destitution, Deprivation and Tribal "Development"', *Economic and Political Weekly*, Vol. XXXVIII, No. 27, 5–11 July.
- Patnaik, N. (1993), *Swidden Cultivation Amongst Two Tribes in Orissa*, Centre for Development research and Training, SIDA and ISO/Swed Forest.
- Patnaik, P.K. (2004), 'Consultation on Quality Elementary Education and Vision 2020: An Agenda

- for School and Mass Education', paper presented at a Workshop organised by Department of School and Mass Education, Government of Orissa in collaboration with UNICEF, Orissa on 19–20 February, at New Delhi.
- Patnaik, Sasikala (1995), 'Economic Contribution of Employed Women to Household Income: A Case Study of Bhubaneswar', Unpublished Ph.D. Thesis, Utkal University, Bhubaneswar, prepared at Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Prabhu, K. Seeta (2001), *Economic Reform and Social Sector Development*, Sage Publications, New Delhi.
- Pradhan, Jagdish (2003), *Odishare Marudi Pratikar Nimante Eka Rananiti*, Sahabhagi Vikasha Abhijana, Bhubaneswar.
- Prajatantra*, Cuttack, 9 October 1990 and 14 October 1990.
- Prakash, Indu (1994), *Disaster Management*, Rashtra Prahari Prakashan, Ghaziabad.
- Pritchett, Lant (2001), 'Where Has All The Education Gone?', *The World Bank Economic Review*, Vol. 15, No. 3, pp. 367–91.
- PROBE Team (1999), *Public Report on Basic Education in India*, Oxford University Press, New Delhi.
- Psacharapoulos, George (1988), 'Education and Development: A Review', *The World Bank Research Observer*, Vol. 3, No. 1, January, pp. 99–116.
- Psacharopoulos, George and Maureen Woodhall (1995), *Education for Development: An Analysis of Investment Choice*, Oxford University Press, New York.
- Radhakrishna, R., K. Subbarao, S. Indrakant and C. Ravi (1997), *India's Public Distribution System: A National and International Perspective*, World Bank Discussion Paper No. 380, The World Bank, Washington, D.C.
- Rajiv Gandhi Foundation (2000), *Status Report of the Panchayati Raj Institutions in Orissa*, New Delhi.
- Rama, Martin (2001), 'The Gender Implications of Public Sector Downsizing: The Reform Programme of Vietnam', *The World Bank Research Observer*, Vol. 17 No. 2, pp. 167–89.
- Ravallion, Martin (1992), 'On Hunger and Public Action: A Review Article on the Book by Jean Dreze and Amartya Sen', *The World Bank Research Observer*, Vol. 7, No. 1, pp. 1–6.
- Reddy, A.V.S., B.K. Thapliyal and K.R. Sastry (2000), 'Disaster Mitigation Through People's Participation: Role of Local Self-Government Institution', paper presented in the National Conference on *Funding Disaster Prevention and Mitigation*, National Institute of Rural Development, Hyderabad, 19–20 December.
- Review of Education in Bengal, 1892–93 to 1896–97*, p. 90.
- Report on the Administration of Bengal, 1900–01*, pp. 40–41.
- Report on the Public Instruction in Bengal, 1985–86*, Para 143.
- Rout, Nihar Ranjan (2003), 'Nutritional Status of Women in Orissa: A Rural Urban Differential from NFHS-2', International Institute for Population Sciences, Mumbai.
- Sahu, Bholeswar (2000), 'Development and Displacement: A Case Study of Rengali Dam Projects in Orissa', Ph.D. thesis submitted to Utkal University, Bhubaneswar and prepared at Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.



- Samal, J.K. (1989), *History of Modern Orissa*, Firma KLM Private Ltd., Calcutta.
- (1999), 'Development of Education in the Post Independence Orissa' in S. Pradhan (ed.), *Orissan History, Culture and Archaeology*, D. K. Print World (p) Ltd., New Delhi.
- Samal, Kishor C. (1994), 'Case Study: Drought and Its Toll in Kalahandi', *Mainstream*, Vol. 32, No. 14, 19 February, pp. 24–26.
- (1998a), 'Ensuring Food Security to Alleviate Poverty and Hunger: A Case Study', *Man and Development*, Vol. 20, No. 3, September, pp. 62–70.
- (1998b), 'The Socio-Economic Impact of the NALCO Angul Sector', *Social Action*, Vol. 48, January–March, pp. 83–93.
- (1998c), 'Poverty Alleviation after Post-liberalisation: Study of a Tribal Block in Orissa', *Economic and Political Weekly*, Vol. 33, No. 28, 11–17 July, pp. 1846–51.
- (1998d), 'Some Aspects of Informal Sector Growth in Orissa', *The Journal of Entrepreneurship*, Vol. 7, No. 1, January–June, pp. 83–91.
- (1999), 'Privatisation of Higher Education: Is it Possible with Alternative Source of Finance', *Man and Development*, Vol. 21, No. 3, September, pp. 155–62.
- (2000), 'Liberalisation and its Adverse Impact on Informal Sector Workers', *Man and Development*, Vol. 12, No. 2, June, pp. 138–44.
- (2001), 'Super Cyclone in Orissa: People's Suggestions and Reaction', *National Symposium on Super Cyclone and Eco-restoration Efforts to Conserve Biodiversity of the State of Orissa*, 30–31 March, P.G. Dept. of Zoology, Utkal University, Vanivihar, Bhubaneswar, pp. 16–20.
- (2002a), 'Forest and Livelihood in Orissa: A Study in Keonjhar District', Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- (2002b), 'Shrimp Culture in Chilika Lake; Case of Occupational Displacement of Fisherman', *Economic and Political Weekly*, Vol. 37, No. 18, 4–10 May, pp. 1714–18.
- (2003), 'Coping Strategy of Weaker Sections (Dalit and Women) in Post Super Cyclone Orissa (Case Study of Ersama Block)', mimeo, (A Report of the Research Project Funded by ICSSR, New Delhi), Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Samal, Kishor C. and Damodar Jena (1998), 'Freedom From Hunger: A Case Study of Laikera Block', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Samal, Kishor C. and S. Meher (1997), 'Migration of Workers to Urban Informal Sector (Case Study of Five Class-I Towns in Orissa)', mimeo, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Samal, Kishor C., Shibalal Meher and Nilakantha Panigrahi (2003), 'Beyond Relief: Disaster Mitigation, Livelihood Rehabilitation and the Post-cyclone Recovery of Orissa (Village Level Studies in the Three Most Cyclone Affected Districts)', mimeo, (A Report of the Research Project funded by Overseas Development Institute (ODI) London), Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Sambad*, Bhubaneswar, 25 October 1992.
- Sarin, Madhu (1997), 'Gender and Equity Concerns in JFM', in Nitya Rao and Luise Rump (eds), *A Just Right*, Freidrich Ebert Stiftung, New Delhi.

- Sarin, Madhu and Ajaya Rai (1998), 'Capacity Building for Participatory Management of Degraded Forests in Orissa, SCC SCANDIACONSULT NATURA (previously SWED FOREST INTERNATIONAL AB.
- Satapathy, Sadhana (1993), 'Floods and Flood Control Policies: An Analysis with reference to the Mahanadi Delta in Orissa', Monograph Series, Centre for Development Studies, Trivandrum.
- Saxena, N.C. (2002a), *Forest in India*, World Bank, Washington, D.C.
- (2002b), 'Government Policy for NTFP in Orissa', unpublished.
- Schultz, T.W. (1961), 'Investment in Human Capital', *American Economic Review*, Vol. 51, March, pp. 1–17.
- Shankar, K. (1997), 'Revamped Public Distribution System: Who Benefits and How Much?', *Economic and Political Weekly*, Vol. XXXII, No. 13.
- Sharma, Anshu, Manu Gupta, Rupali Bajaj and Rajiv Shaw (2003), 'From Disaster to Sustainable Community Recovery: Challenges and Lessons Learned', *Regional Development Dialogue*, Vol. 24, No. 1, Spring, pp. 30–38.
- Shylendra, H.S. (2002), 'Environmental Rehabilitation and Livelihood Impacts- Emerging Trends from Ethiopia and Gujarat', *Economic and Political Weekly*, Vol. 37, No. 31, August, pp. 3286–292.
- Sikshya Samasya* (2002), Vol. XXIII, No. 8, August, Orissa Sikshyaka Mahasangha, Bhubaneswar.
- Sikshya Sandhana* (2002), 'Alternative Education Programme for Tribal Children', *Annual Report 2001–2002*, pp. 3–10, Sikshya Sandhana, Bhubaneswar.
- Swain, Mamata (2002), *Impact of Super Cyclone on Life and Livelihood of Women (An Analytical Study of Two Coastal Districts of Orissa)*, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.
- Taori, Kamal (2000), *Need for Close Linkage in Rural Development in Sustainable Human Development—Issues and Challenges*, Concept Publishing Company, New Delhi.
- The Economic Times* (2003), Kolkata, 14 July 2003, Editorial, 'For Shame'; 19 July 2003, Editorial, 'Flawed Proposals'.
- The Samaj*, Cuttack, 12 October 1990.
- Tilak, Jandhyala B.G. (1994), *Education for Development in Asia*, Sage, New Delhi.
- (2000), 'Why Do Some Children Never Go to School in Rural India', *Kurukshetra*, Annual Issue, Vol. 49, No. 1, October, pp. 55–9.
- (2002), 'Financing Elementary Education in India', in R. Govind (ed.), *India Education Report: A Profile of Basic Education*, Oxford University Press, New Delhi.
- (2004), 'Free and Compulsory Education', *Economic and Political Weekly*, Vol. 39, No. 7, 14 February, pp. 618–20.
- Tiwari, A.P. and Bharti Pandey (1998), 'Human Development and Government Expenditure: The Indian Scenario', in S.P. Srivastava (ed.), *The Development Debate—Critical Perspectives*, Rawat Publication, New Delhi.
- United Nations Children's Fund (UNICEF) (1995), *The Progress of Indian States*, UNICEF, New Delhi.
- United Nations Development Programme (UNDP) (1990), *Human Development Report 1990*, Oxford University Press, New York.



- (1991), *Human Development Report 1991*, Oxford University Press, New York.
- (1995), *Human Development Report 1995*, Oxford University Press, New York.
- (1996), *Human Development Report 1996*, Oxford University Press, New York.
- (1999), *Human Development Report 1999*, Oxford University Press, New York.
- (2002), *Human Development Report 2002*, Oxford University Press, New York.
- Utkal Dipika*, Cuttack, 20 July 1905.
- Vaizey, J. (1962), *Economics of Education*, Faber and Faber, London.
- VASTAVA (2003), 'Sustainable Livelihood of People Living in and around the Mangrove Forest of Bhitarkanika', mimeo, New Delhi.
- Vrolijk, Luc (1997), 'Guidelines for Community Vulnerability Analysis: An Approach for Pacific Island Countries', mimeo, prepared for the South Pacific Disaster Reduction Programme, (RAS/92/360), UN Department of Development Services and Management Support, New York.
- Weisbrod, B.A. (1962), 'Education and Investment in Human Capital', *Journal of Political Economy*, Vol. 70, No. 2, Part 2 (supplement), pp. 106–23.
- World Bank (1990), *World Development Report 1990*, Washington, D.C.
- , *Orissa Health Systems Development Project*, Project Appraisal Document Report No. 17653-IN, India.
- (2000), *World Bank Policy and Research Bulletin*, July–September, Vol. II, No. 3.
- (2001a), *Engendering Development—Through Gender Equality in Rights, Resources and Voice*, Oxford University Press, New York.
- (2001b), *World Development Report 2001*, Washington, D.C.
- World Food Programme (2002), 'Community Level Food Insecurity and Vulnerability in the Villages of Orissa', New Delhi, August.





Given its agro-climatic diversity and rich natural endowments, Orissa is cited as a case of unfulfilled potential for both agricultural and industrial growth. The Orissa Human Development Report provides a benchmark against which future attainments on the human development front in the State can be judged. It critically examines certain key components of Human Development in the State, highlights the achievements to date and suggests measures required to consolidate and accelerate the gains.