



***Aajeevika* - Livelihoods in Rajasthan:
Status, Constraints and Strategies for Sustainable Change**

ARAVALI



H D R C
Human Development Resource Centre



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Status, Constraints and Strategies for Sustainable Change**

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(Association for Rural Advancement through Voluntary Action and Local Involvement)



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PROLOGUE

Livelihood is an oft-used term with many different connotations. The *Aajeevika* study considers livelihoods as a composite of entitlements and capabilities that determine the existence of a household, as it analyses how rural livelihoods are changing and diversifying in rural Rajasthan.

Based on extensive fieldwork carried out in four development blocks in the State, the study reviews the chief livelihood strategies and the main livelihood sectors in the region. In particular, it analyses livelihood options before the poorest sections of the rural community and provides a set of recommendations for promoting sustainable livelihood options across the State.

This paper is based on one of the studies commissioned by HDRC, as a follow-up to the State Human Development Reports, to have a deeper understanding of the livelihood situation in various States.

ARAVALI is a development support organisation initiated by the Government of Rajasthan to promote innovation in development and greater collaboration between the government and non-government organisations.

PREFACE

The State of Rajasthan, located in the northwestern region of India, occupies eleven per cent of total land area in the country, and shares an international boundary with Pakistan in the west. Sandy plains, mostly arid and infertile, constitute about sixty per cent of State area in the north and west, while the south eastern part is more diverse consisting of hilly ranges, wide vales and fertile table lands.

Population in the State is over fifty six million (Census, 2001), population density being high in the eastern and central regions and extremely low in the desert regions in the west. Development indicators are poor, with high infant mortality rates (89) and with substantially lower literacy rates, especially female literacy (20.4 per cent) compared to the rest of India. Total fertility rates (4.6) are high resulting in high decadal growth rates of population in the State.

Indeed Rajasthan, a predominantly agricultural State, with over seventy seven per cent of the total population residing in rural areas, is among the poorer States in the country today.

To capture the diversity of livelihood conditions across the State, the *Aajeevika* study covered four development blocks in Rajasthan, each representing a larger socio-ecological region of Rajasthan (viz., the Tribal South, the Desert West, the Irrigated East and the Semi-Arid North Central zones), with a view to identifying important livelihood options and constraints facing different segments of the population in each region.

The study attempts to understand how rural livelihoods are changing and diversifying in rural Rajasthan and what factors determine access to new and productive livelihood opportunities for different sections of the rural population, especially the poor. Apart from reviewing the chief livelihood strategies and identifying the main livelihood sectors, the study focuses especially on livelihood options before the poorest sections of the rural community, as it explores various measures that can facilitate the rural poor in achieving successful sustainable livelihoods.

A set of recommendations are provided for improving livelihood options in rural Rajasthan, where a novel suggestion made is that the State should foster the development of Resource Centers for facilitating migration out of rural areas. For, increasingly migration is becoming an important livelihood strategy for a significant proportion of the rural population in many areas in the State.

Finally the study proposes a set of measures for operationalising some of the key recommendations aimed at improving the rural livelihood scenario in the state, identifying the main stakeholders and setting out the guidelines of an action agenda for implementation.

It is hoped that this report would be found useful by both governments and NGOs in undertaking livelihood planning for Rajasthan.

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ABBREVIATIONS

BDO	Block Development Officer
BPL	Below Poverty Line
CGWB	Central Ground Water Board
EAS	Employment Assurance Scheme
FO	Farmers' Organisation
IGNP	Indira Gandhi Nahar Pariyojna
IRDP	Integrated Rural Development Programme
ITI	Industrial Training Institute
IWMI	International Water Management Institute
JRY	Jawahar Rozgar Yojana
MP	Member of Parliament
MLA	Member of Legislative Assembly
NABARD	National Bank for Agriculture and Rural Development
NRM	Natural Resource Management
PA	Promoter Agency
PDS	Public Distribution System
PHED	Public Health Engineering Department
PIM	Participatory Irrigation Management
PS	Panchayat Samiti
PWD	Public Works Division
RSEB	Rajasthan State Electricity Board
SC	Scheduled Castes
ST	Scheduled Tribes
SGRY	Sampoorna Grameen Rozgar Yojana
SGSY	Swarnajayanti Grameen Swarozgar Yojana
SGWD	State Ground Water Department
SHG	Self-Help Group
WUA	Water Users Association

GLOSSARY

<i>Aajeevika</i>	Livelihoods
<i>Bhils</i>	A scheduled tribe community
<i>Bishnois</i>	A peasant caste
<i>Dangi Patels</i>	A peasant caste
<i>Dhakars</i>	A peasant caste
<i>Charnoi</i>	Pasturelands
<i>Dhaba</i>	An informal food stall
<i>Gram / Grameen</i>	Village
<i>Gram Sabha</i>	General body comprising all adult inhabitants of a village
<i>Gujars</i>	A peasant caste
<i>Gwar</i>	Cluster Beans
<i>Hamaali</i>	Physical labour involving loading- unloading
<i>Jagirdari</i>	A system of land tenure
<i>Jats</i>	A peasant caste
<i>Kharif</i>	Monsoon crop
<i>Khatedari</i>	Land records
<i>Mahakaal</i>	Conditions of extreme drought
<i>Meenas</i>	A peasant caste
<i>Meghwal</i>	A scheduled caste community
<i>Meos</i>	A peasant caste
<i>Mers</i>	A minority community
<i>Moong</i>	Green gram; a kind of pulse
<i>Nabar</i>	Canal
<i>Panchayati Raj</i>	Term referring to the system of local self-governance in villages
<i>Panchayat</i>	An administrative unit comprising of a few revenue villages
<i>Pariyojna</i>	Programme
<i>Patidar</i>	A peasant caste
<i>Pucca</i>	Paved or made of concrete
<i>Rabaris</i>	A traditional rural community
<i>Rabi</i>	A winter crop
<i>Raikas</i>	A traditional rural community
<i>Rajputs</i>	Traditionally a warrior caste, now mostly engaged in agriculture
<i>Rozgar</i>	Employment
<i>Sadak</i>	Road
<i>Samiti</i>	Committee or Association
<i>Sampoorna</i>	Complete
<i>Shramik Kendra</i>	Centre for Labourers
<i>Suthars</i>	Caste of Carpenters
<i>Swarnajayanti</i>	Golden jubilee
<i>Swarozgar</i>	Self-Employment
<i>Yojana</i>	Plan
<i>Zila Parishad</i>	The district level administrative unit

Executive Summary

The *Aajeevika* livelihood study undertakes a detailed analysis of the problems facing rural livelihoods across Rajasthan. An extensive field survey was carried out in four blocks, each from a different socio-ecological region, representing the diversity in livelihood options and constraints facing the rural population in the State. The survey, carried out from September 2002 onwards was spread over a period of ten months.

The study provides an overview of the rural economy of Rajasthan, assessing the overall livelihood scenario in the State and identifying the chief livelihood options available to various sections of the rural community. In particular, the important livelihood sectors are studied and the main livelihood strategies adopted, especially by the poorest sections of the rural population, are reviewed.

Based on a detailed analysis of the findings from the field surveys and from an assessment of overall employment scenario in the State, a set of recommendations are suggested for improving livelihood options, especially for the poorest and most vulnerable segments of the rural community.

To begin with, this paper sets out the methodology and framework adopted for analysing the current status, constraints and opportunities regarding rural livelihoods, followed by an overview of the rural economy. This is followed

by an appraisal of the primary livelihood sectors and strategies adopted by various groups across different socio-ecological regions in the State.

Next, there is a brief discussion of the main factors that govern access to productive livelihoods across rural areas. In this context, the role of the government initiatives in addressing the problem of income generation in rural areas is reviewed. This analysis clearly points to the need for rethinking rural poverty alleviation in the State.

Thereafter, a set of recommendations is provided for strengthening livelihood options especially for the rural poor across Rajasthan, along with suggestions for operationalising key recommendations by identifying the primary stakeholders and specifying the broad guidelines for an action agenda for implementation.

An important finding from the *Aajeevika* study is that even at the current conjuncture, caste identities and access to social and political networks are important factors governing access to productive livelihoods. In this context there is an important role for education in helping individuals overcome such barriers and constraints. In addition, the study identifies migration as another important strategy, used especially by the backward and poor sections in the rural economy, to gain access to productive livelihoods and break away from social oppression.

An important finding from the Aajeevika study is that even at the current conjuncture, caste identities and access to social and political networks are important factors governing access to productive livelihoods

The Aajeevika Study : Analytical Framework and Methodology

The Aajeevika study explores the current livelihood scenario across regions in rural Rajasthan

The *Aajeevika* study explores the current livelihood scenario across regions in rural Rajasthan. The Human Development Report for Rajasthan (2001) critiqued the main livelihood and employment sectors in the State and underscored the need for rigorous analysis of livelihood generation and for rethinking the strategy for strengthening livelihoods in specific regions and especially for vulnerable groups in the State. The *Aajeevika* study addresses precisely these concerns by undertaking a comprehensive field based research study carried out from September, 2002 onwards for a period of ten months.

1.1 Concepts and Definitions

The working definition of livelihoods adopted for the study follows Scoones (1998) : “*A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable if it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.*”

With this broad, inclusive definition of livelihoods, the study has adopted a holistic approach for assessing rural livelihood options, based on the sustainable livelihood model developed by the Institute of Development Studies (Scoones, 1998). This model locates

development of livelihoods in a holistic setting, incorporating the natural and socio-political context and its interplay with the overall institutional and organisational framework, which together determine the livelihood profiles of individuals and communities. It thereby provides a much broader focus than conventional analyses of separate economic sectors.

At the very outset an important distinction is made between livelihood *resources* and livelihood *strategies*.

Livelihood resources refer to the *basic assets* which rural people and families possess for pursuing different livelihood strategies; these are not limited only to material assets like cash or land or livestock, but also include skills, social networks and natural infrastructure. In particular, for this study, *livelihood resources* include :

- Natural Capital : soil, water, genetic resources, etc.
- Financial Capital : cash, savings, production tools and infrastructure.
- Human Capital : skills, knowledge, physical well being, etc.
- Social Capital : social networks, affiliations and associations.
- Political capital : level of political consciousness, extent of political networks, etc.

Livelihood resources are used in various combinations to pursue *livelihood strategies*. There are three main clusters of livelihood strategies practised by the rural people :

- Agriculture Extensification and Intensification
- Livelihood Diversification
- Migration

The *Aajeevika* study uses this classification while appraising livelihoods at the household, village, block and State levels.

Agriculture Extensification and Intensification

Agriculture extensification occurs with the bringing in of new lands under cultivation and productive use and this process is aided by access to tools and technology and also via land reforms. However, at the current conjuncture, the scope for bringing new land under cultivation is limited.

In the context of the predominantly agrarian rural economy in the State, intensifying land use through enhanced investment on and application of technology, capital and labour is common, especially for those who have already attained a basic threshold level of food security. Agriculture intensification under semi-arid and rainfed conditions in the State is primarily led by increased access to irrigation. Given supporting infrastructure with respect to improved varieties of seeds, fertilisers, and marketing facilities, improved irrigation can be an important factor underlying the transformation of existing enterprises in the crop and live-stock sectors into surplus driven, commercially viable entities.

Livelihood Diversification

The importance of livelihood diversification is accentuated by the increasing pressure on land and water resources and the increasingly unfavourable returns to agriculture leading to poverty. As such, people are constantly attempting to diversify out of farming into more lucrative activities to reduce the risk of agrarian livelihoods. This may involve specialisation into secure, full time occupations or even into part-time and casualised activities with low returns and low security to make ends meet. The latter, while essential for ensuring survival, are also associated with increasing poverty and vulnerability.

In Rajasthan, diversification is widely evident. However, diversification is not equally feasible in all regions, with greater scope for diversification into allied agro-led sectors in high potential agricultural areas. Further, opportunities for diversification are negotiated largely on the strength of capital and investment abilities.

Migration

Migration is becoming an increasingly prevalent livelihood strategy, pervading large sections of the rural population in depressed, low-endowment areas. Migration may be voluntary or involuntary, seasonal or permanent and its effects on livelihoods can vary considerably. Remittances may be used for basic family maintenance or sometimes even for investment in farming.

Migration for wage labour is common across Rajasthan and it takes many forms. In particular, construction, mining and quarrying and casual labour

Migration is becoming an increasingly prevalent livelihood strategy. Migration may be voluntary or involuntary, seasonal or permanent and its effects on livelihoods can vary considerably

opportunities in high potential areas of Delhi and Gujarat attract large proportions of the casual labour work-force in the State.

1.2 Methodology

1.2.1 The Sampling Process

The *Aajeevika* study intensively covered four development blocks, in four different districts across the State, each district representing a larger socio-ecological region of Rajasthan.

The State was divided into four separate zones on the basis of agro-climatic characteristics, development of industrial activity, and development of irrigation :

- The Tribal South
- The Desert West
- The Canal Irrigated East
- The Semi-Arid North Central Regions

Sample districts and blocks within an agro-climatic zone and villages within a block were selected with a view to ensure that these represented the distinctive characteristics of the overall region. Presence of NGOs was another criterion used to select blocks within each region, since this research was carried out in close partnership with such NGOs.

One district was chosen from each of the four zones and one block was selected from each district. Two villages were chosen from each block and detailed household surveys were carried out in each village, covering a total of two hundred and eighty households in the four blocks.

The following table specifies the districts, blocks and villages chosen for the study, along with distinctive features of the agro-climatic zone that they represent.

Selected Districts, Blocks and Villages from Four Agro-Climatic Zones of Rajasthan

District : Jaipur Block : Dudu Villages : Gagardu and Malyawas	<i>Semi-Arid North Central</i> <ul style="list-style-type: none"> • High level of urban and industrial migration • Large non-farm sector employment potential because of urban proximity
District : Bundi Block : Taleda Villages : Kothya and Bhairoopura Ojha	<i>Canal Irrigated East</i> <ul style="list-style-type: none"> • Intensive farming system with high incidence of irrigation.
District : Jaisalmer Block : Pokhran Villages : Rathora and Kelawa	<i>Desert West</i> <ul style="list-style-type: none"> • Representing arid desert conditions • Extensive farming with high incidence of livestock and artisan work
District : Udaipur Block : Dhariyawad Villages : Ovra and Shobh ji ka Guda	<i>Tribal South</i> <ul style="list-style-type: none"> • Representing typically hilly and rainfed conditions with pockets of irrigation. • Predominantly tribal • Low rural non-farm sector potential

The Aajeevika study intensively covered four development blocks, in four different districts across the State, each district representing a larger socio-ecological region of Rajasthan

Block Review

The primary unit of analysis was the block (*panchayat samiti*). In each district the aim of the block review was to identify :

- Key economic activities
- Key socio-political characteristics
- Important socio-economic and power relations
- A spatial map of key markets, infrastructure, and sites of production

Village Studies

The village studies had two stages :

A general village census: A minimum set of data was collected for each and every household in the village, which generated reliable information about two factors that guided subsequent study, viz. socio-economic differentiation and livelihoods.

Detailed household level data collection: Thirty to forty-five households were selected from each village for in depth study of institutional and economic change. Further, thirty detailed case studies were compiled, capturing different aspects of livelihood strategies adopted by households across rural Rajasthan.

In each village households were selected in such a manner that they reflected :

- The proportion of the major castes in the village
- The poor and the non-poor in the ratio of 6:4

1.2.2 The Analytical Tools

Two separate indicators, viz. 'occupation status' and 'household income' were used to assess livelihood status and strategies. An income criterion was used to identify poor households within each village and income and asset criteria were used to identify the poorest among the poor.

Occupational Status: This indicates the economic activity that the person was engaged in throughout the year. As it is common to find the same person engaging in more than one activity during the year, two responses were collected – primary occupation and secondary occupation. Primary occupation was what the worker did for most of the year that is more than 183 days. Secondary occupation was what the worker did for a shorter period.

The definition of occupational status and occupational categories (with some change) were the same as that used in the Census¹.

Household income: This was used to assess livelihood strategies adopted at the household level.

Household income was tabulated across six main categories :

- Agriculture
- Animal husbandry
- Wage labour
- Household industry
- Other income (comprising a variety of activities in the non-farm sector)
- Migration

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¹ For each occupational category changes in the share of workforce have been computed on the basis of comparison of the Aajeevika survey results with Census figures for 1991. The associated problems of comparability and how these are sought to be resolved are discussed in the Technical Notes (p.63).

The criteria used for identifying poor households was based on size of landholding, animal holding, ownership of pucca house and organised sector job

Expenses incurred for carrying out an activity were subtracted from total incomes from the activity to arrive at net incomes. E.g., if during cultivation, seed was purchased from the market; its cost was subtracted from the total output; whereas, if in-house seed was used, its cost was not accounted for and gross output was valued.

Therefore the livelihood status of households is gauged using two categories of information, viz., information on *primary* livelihood activities adopted and income from *all* such livelihood activities followed by households.

Identification of Poor Households:

Exact definitions of poverty lines are an issue of serious academic debate and establishing a poverty line is beyond the scope of the *Aajeevika* study. Rather, 'relative poverty' is a matter of far greater concern, viz., identification of households who are worse off in comparison to others, for analysis of their livelihood strategies. Broadly the criteria used for identifying poor households was based on size of landholding, animal holding, ownership of *pucca* house and organised sector job.

In general all households with incomes less than Rs.20,000 are counted among the rural poor.

The study uses two criteria for identifying the poorest of the poor households in rural areas :

- An income criterion : those with annual incomes less than Rs. 10,000 per annum
- An asset criterion : those with land holding below a certain minimum, where this minimum level (usually the cut off point for small farmers) varies from region to region as follows :
 - 2 hectares, in the Tribal South and Semi-Arid North Central regions
 - 4 hectares, in the Desert West
 - 1 hectare, in the Canal Irrigated East

The *Aajeevika* study therefore, has considered livelihoods as a composite of entitlements and capabilities that determine the existence of a household and explored the constraints acting upon both these aspects of poor households in rural Rajasthan, in order to generate options for promoting sustainable livelihoods. It has undertaken a detailed field study to evaluate the ground reality regarding livelihood prospects and constraints faced by different sections of the rural population, especially the poor.

SECTION II

Rural Livelihoods : An Overview

This section examines the current status of livelihood and employment in rural Rajasthan. The main occupational categories in rural areas, primary livelihood strategies followed by the rural people and important livelihood sectors in the State are discussed in turn.

2.1 Main Occupational Categories

The working population is divided into five categories. The current situation and main trends regarding each of these categories across regions in Rajasthan are discussed below.

Owner Cultivation: This continues to be the predominant form of employment in the State in all regions (Table 1, p.64). However there has been a rapid decline in the proportion of population engaged in agriculture, especially in the Tribal South and Semi-Arid North Central regions, while this proportion has remained stable in the Canal Irrigated East and the Desert West (Table 2, p.65).

Between 1991 and 2002, the proportion of male workforce engaged in agriculture and allied activities declined by forty-five percent in the Tribal South and by twenty-nine per cent in the Semi-Arid North Central region (Table 2, p.65). In the Tribal South there appears to be a large outflow from the cultivator category to migration, a phenomenon which holds for the Semi-Arid North Central

regions as well. However diversification is more advanced in the North Central regions, with non-farm activities emerging as an important alternative to agriculture based livelihoods in these areas.

Animal Husbandry: This is a significant occupation in all areas, engaging the highest proportion of workforce in the Semi-Arid North Central region and the lowest in the Tribal South. A reasonably high proportion of the workforce are engaged in animal husbandry in the Desert West.

The share of workforce engaged in animal husbandry has remained stable and changed only marginally in three of the four zones covered. Only in the Desert West has this shown significant increase, from four to ten percent. However in part this may reflect under enumeration in the Census or over enumeration in *Aajeevika* survey.

Agriculture Labour : This constitutes the highest share of workforce in the Canal Irrigated East, employing just under a fifth of the population at 18.9 percent and it is also significant in the Semi-Arid North Central zone.

Interestingly, agriculture labour is almost negligible in the Tribal South. This is because the incidence of landlessness in this area is low and the majority of households own some land. However in most cases the landholding size of

There has been a rapid decline in the proportion of population engaged in agriculture, especially in the Tribal South and Semi-Arid North Central regions

The share of workforce involved in miscellaneous non-farm activities has registered a steady increase in all areas, except the Desert West, indicating a general increase in the extent of diversification in the rural economy of the State

households is quite meager, so that agriculture in this area is mainly subsistence oriented and does not generate much surplus or employment.

Non farm Sector Activities²: The non-farm sector is most vibrant in the Semi-Arid zone around Jaipur and Ajmer where it employs over a fifth of the workforce at 21.8 percent (Table 1, p.64). It is far less significant in the Desert West and in the Eastern regions and it is almost negligible in the Tribal South.

The share of workforce involved in miscellaneous non-farm activities has registered a steady increase in all areas, except the Desert West, indicating a general increase in the extent of diversification in the rural economy of the State (Table 2, p.65).

Migration: This emerges as a significant activity in all regions except the Canal Irrigated areas, which in fact attract in-migration. It is highest in the Tribal South, where over a quarter of the workforce migrates. It is also significant in Desert areas and in the North Central zone.

Migration, however, is not a recognised category in the National Industrial Classification (NIC) followed by the Census. As such, evidence regarding its increasing importance in rural livelihood portfolios, especially in the tribal areas in South Rajasthan is gathered from household surveys, personal interviews and case studies conducted during *Aajeevika* fieldwork³.

2.2 Important Livelihood Strategies

Analysis of household incomes from different sources reveals the importance of alternate livelihood strategies across rural areas in the State. The study confirms that agriculture extensification and intensification, diversification into non-farm activities and migration were the main livelihood strategies adopted by households in various combinations in different regions. In particular, the livelihood strategies adopted by the poorest rural households are reviewed, in the context of their access to certain basic livelihood resources.

The *Aajeevika* survey identifies six main sources of household incomes :

- Agriculture
- Animal husbandry
- Wage labour
- Household industry
- Other incomes (including activities in the non-farm sector, other than migration)
- Migration

2.2.1 Livelihood Strategies of Rural Households in General

Agriculture remains the single most important source of household income in most regions in the State. In fact, over half of household income is from agriculture Canal Irrigated Areas, accentuating the importance of the activity in the region. The Tribal South is an exception, where on average agriculture accounts for just over

² This refers to all non-farm activities, other than those undertaken during migration.

³ In fact, it appears that the Census may not be able to capture accurately the occupational status of workers undertaking migration. See Technical Notes (p.63)

a quarter (26.5 per cent) of household incomes (Table 3, p.65).

Agriculture wage labour is an important source of household income in all areas, except the Tribal South.

Animal husbandry is an important source of supplementary income throughout the State, accounting for about fifteen per cent of household incomes across all regions (Table 3, p.65).

Other incomes also feature in all areas, varying from being less important in the Tribal areas (less than ten per cent of household incomes) to much more important in the Desert areas (about eighteen per cent of household incomes) (Table 3, p.65).

Incomes from **household industries** is of some significance in two areas, viz., Semi-Arid North Central and the Desert West, but is extremely low in the Tribal South and virtually non-existent in the agriculturally developed areas in the Canal Irrigated East.

Migration is the predominant source of household income in the Tribal South and a significant source in the Desert West and Semi-Arid North Central regions. It accounts for over two-fifths of total household incomes in the Tribal South and about twelve per cent in the North Central and Desert zones (Table 3, p.65). However it is virtually non-existent in the Canal Irrigated East where agriculture based livelihoods dominate – less than one per cent of household incomes in this region come from sources related to migration.

2.2.2 Livelihood Strategies of Poor Households

Incidence of Rural Poverty: The proportion of rural poor is around twenty percent in three of the areas covered⁴, the exception being the Semi-Arid North Central region, where the poor constituted only nine per cent of the total rural population (Table 4, p.65).

The high incidence of poverty (twenty six percent) in the Canal Irrigated areas is surprising, given the relative agricultural prosperity of this region compared to the others. It appears that this is largely because of the absence of diversification among the poor and their almost complete dependence on local agriculture labor markets, where wage rates are low due to overcrowding.

Analysis of Household Incomes: An analysis of the sources of household incomes gives important insights into the livelihood strategies of the poor (Table 5, p.66).

The dominant source of income of poor households in three out of the four areas was *local wage labour*. In the Canal Irrigated Areas, the share of wage labor accounted for almost seventy per cent of household incomes and hovered around the half way mark in the Semi- Arid and Desert areas. Income from this source was lowest in the Tribal South, where local wage options are very limited.

In fact agricultural income from *owner cultivation* was the single most important source of income (at 31.6 percent) for

The dominant source of income of poor households in three out of the four areas was local wage labour

⁴ This refers to the poorest of the poor in rural areas who were identified in the course of the Aajeevika using an income and an asset criteria. The methodology used for identifying the poorest households is described in Section 1.2.2 above.

The overall infrastructure and economic capital base of the area tend to have a much more crucial bearing on the potential for economic activities for the poor

the poor in the Tribal South, where incidence of landlessness is low. Income from agriculture is lowest for the poor in irrigated areas where landlessness is high.

However in the Tribal Areas, even though the distribution of land is even, holding sizes are small, so that agriculture is subsistence oriented and income from agriculture is low. As such the poor, who have no choice but to remain dependent on agriculture, remain poverty stricken.

Animal husbandry is another important source of income, especially in tribal areas where it accounts for over a quarter of household incomes. Share of animal husbandry is also significant in the canal irrigated areas at 18.1 percent, but negligible in the Desert West and the semi-arid zones, where *household industry* is far more important.

The other category of income from non farm activities, classified as “*other incomes*” is important in all, except the canal irrigated areas.

Notably, income from migration accounts for a low share of household incomes for the bottom poor. The Tribal South Region is an exception, where migration accounts for a significant source of income even for the poorer sections of the population.

This finding, that the contribution of migration to the livelihoods of the poorest is significantly lower than the rest of the population, analysed later in the study, seems to indicate that the bottom poor are actually unable to migrate and often remain trapped in poverty for that reason.

Access to Livelihood Resources: The poor households have extremely low endowments of human and physical capital (primarily land and water).

Human capital primarily refers to presence of skilled, employable workers in the household and a family with surplus labor can send some of its members to work outside to augment family incomes. For instance, traditional skills like carpentry command a premium in urban areas, while skills acquired through training and education also play a crucial role in acquiring stable, mainstream job opportunities. However typically the poorest families are unable to send out members, instead these are dependent on local labour markets characterised by low and highly casualised wages.

On the other hand, land is the most important *physical capital* for rural livelihoods, but the poor are either landless or have only small and marginal land holdings, inadequate for meeting the needs of the family. Rather, the overall infrastructure and economic capital base of the area tend to have a much more crucial bearing on the potential for economic activities for the poor. For instance, good infrastructure and economic base of the surrounding areas is one of the key reasons for the relatively small proportion of poor households in the rural areas of the Semi-Arid North Central region.

2.3 Main Livelihood Sectors

This section appraises the main livelihood strategies across rural Rajasthan by adopting a sectoral approach. In particular the relevance of agricultural

extensification and intensification, animal husbandry and migration as viable options for the rural population across the State are discussed here.

2.3.1 Agriculture

Agriculture Extensification: Rajasthan underwent an agriculture extensification process immediately after Independence and once again in the seventies, after the introduction of tractors. Independence and the passage of the Rajasthan Tenancy Act in 1956 did away with the shackles of feudalism and released land for cultivation by all sections of society. Emergence of tractor cultivation in the seventies led another drive for increasing land under cultivation. In particular, the extensification process was remarkable in the Desert West, where huge stretches of land, hitherto covered with scrub, were brought under the tractor plough.

However there are indications that this process has now come to an end. There is little land left for extensification and even village commons have been encroached upon. Many desert areas have been converted into agricultural land and the area under cultivation is unlikely to show any further increases.

Agriculture Intensification: Despite low rainfall, many parts of Rajasthan have witnessed a process of agricultural intensification. Among the four agro-ecological zones studied, agriculture intensification is widespread in the Semi-Arid North Central and Canal Irrigated East. Even in the other two areas, there are pockets of agriculture intensification. Thus commercialization of agriculture seems feasible even in rain-fed

conditions provided certain other conditions are favorable.

The process of agriculture intensification must be understood with reference to parameters like incidence of irrigation, share of cash crops in the cropping pattern, use of agriculture implements and farm machinery, and changes taking place in tenurial relations. Each of these issues are considered in turn.

Irrigation is one of the basic preconditions for the process of intensification. Irrigation makes it possible to double the productivity of land by taking a second crop and it has an important protective role in case of monsoon failure, which is common in the State. Significant proportions of cultivated land are now under irrigation in different zones of Rajasthan (Table 6, p.66). Irrigation is almost one hundred percent in the canal irrigated areas and over a third of cultivated land is under irrigation in the North Central and Tribal Zones; only in the Desert West is irrigation is still very limited.

Average size of irrigated landholdings also varies considerably across areas, being higher in the Canal Irrigated (1.5 hectares) and the Semi-Arid (1.2 hectares) areas, which have witnessed a greater incidence of intensive agriculture. Average size of irrigated landholding is lowest in the Tribal South (0.3 hectares), reflecting the smallness of average landholdings in the region, whereas the situation appears to be somewhat better in the Desert areas (0.8 hectares), no doubt owing to the effects of the IGNP.

Agriculture intensification is also accompanied by *cultivation of cash crops*.

There is little land left for extensification and even village commons have been encroached upon. Many desert areas have been converted into agricultural land and the area under cultivation is unlikely to show any further increases

In most parts of Rajasthan, except in the Tribal South, ploughing by bullocks has been almost totally replaced by tractor ploughing

While traditional cultivation involves production for self-consumption, commercial agriculture is more market oriented, involving crops that will fetch a good return in the market.

In the regions with high incidence of intensive agriculture (Canal Irrigated East and the Semi-Arid North Central region) the proportion of *Kharif* acreage⁵ under cash crops exceeds sixty percent, whereas it is as low as fourteen percent in the Tribal South where agriculture is far more poorly developed.

Surprisingly, even in the Desert West this acreage is high at forty three percent, which indicates that commercial agriculture is possible even in desert climates if other conditions are favorable. In particular, a high incidence of cash cropping in the desert is possible by sowing *gwar*, which grows well even with very little rainfall.

Use of agricultural machinery like tractors, threshers, and harvesting combines is quite common in areas which have witnessed a high degree of agricultural intensification. In fact, in most parts of Rajasthan, except in the Tribal South, ploughing by bullocks has been almost totally replaced by tractor ploughing. Only in the tribal areas where the terrain is hilly and landholdings are small does bullock ploughing still survive.

Harvesting combines are beginning to be used for harvesting wheat in the Canal areas and in all areas with good irrigation facilities and high wheat acreage, even though most combines still come all the way from Punjab.

Increasing commercialization of agriculture in rural Rajasthan has been accompanied by *changes in tenurial practices*. Abolition of *jagirdari* in the post independence period and promulgation of Rajasthan Tenancy Act in 1956 had led to resumption of *khatedari* rights by owner peasants. However the nature of large-scale owner cultivation is now changing and a number of patterns are visible. The profile of the lessor, who leases out land, the lessee, who leases in land, as well as the terms of agreement are all undergoing change.

The various types of owners who lease out their lands include :

- *Feudal owners*, who do not cultivate land as it is considered demeaning, rather they let it out on lease. Mostly *Rajputs* and other forward castes come under this category. However this is beginning to change as more and more *Rajput* families are beginning to take up cultivation.
- *Service class owners*, who also lease out land because the landowner holds a full-time job in the organized sector. This class of owner lessor is increasing as more and more medium to large rung farmers in rural Rajasthan get access to organized sector jobs.
- *Labour tenancy*, where the landowner gives out the labor component in total and negotiates an agreement for a fixed share of output, a practice common in intensively irrigated areas.
- *Reverse tenancy*, where a small farmer leases out land to a bigger landowner who owns a tractor and wishes to

⁵ A similar analysis for Rabi was not undertaken. Wheat is the main Rabi crop in the surveyed villages, serving as a subsistence as well as cash crop, depending on prevalent area-specific and household-specific conditions.

increase the size of his operational holding. This practice is becoming increasingly common in rural areas of the State, especially in the agriculturally prosperous areas.

The profile of the lessee is also changing, with agriculture becoming intensive, requiring greater infusion of capital :

- *the traditional lessee mainly brought in labor power*
- *reverse tenancy has meant the entry of a new class of lessee - these are big land owners who seek to lease land to enhance their scale of operations.*
- *it is now increasingly difficult, if not almost impossible for the landless and the poor people to undertake tenancy, an option that seems open only for the medium level landholders.*

Terms of agreement are also undergoing change and a variety of agreements are in place, in keeping with variations in agro-climatic endowments of the different regions.

The traditional agreement made for an equal sharing of expenses and harvested output, with labor being the responsibility of the tenant. A major change now is that owners prefer to give out lands on a fixed rent basis, thereby passing on the entire risk to the tenant⁶.

As for mortgages, farmers normally mortgage their land only under extreme economic duress, when no other option is open. This is an extreme form of tenancy where the farmer loses control over land for an extended period, till he

repays the loan. Normally interest is serviced by occupancy by the lender, whereas at other times the lender may let the owner retain the occupancy, in which case the owner becomes a tenant on own land.

The incidence of leasing and mortgage of land is different across the study areas (Table 7, p.66):

- tenancy is more widespread in areas where agriculture intensification is high, viz. the Semi-Arid North Central and Canal Irrigated East
- incidence of mortgage is highest in Tribal South, a commentary on the precarious nature of agriculture livelihoods in the region and the poor status of tribal farmers.

2.3.2 Animal Husbandry

Main Characteristics : Animal husbandry is of special significance as a rural livelihood strategy because it can play a crucial drought proofing function in the context of specific agro-climatic conditions in the State. While crop output is severally affected by the failure of monsoon and is a regular occurrence⁷, milk production does not decline by the same proportion. Milk cooperative dairies even report an increase in milk procurement with the onset of drought, which happens because farmers tend to maximize their attention to this source of livelihood under drought conditions. However, drought also has a severe impact on animal husbandry with increasing fodder prices leading many farmers to even

Animal husbandry is of special significance as a rural livelihood strategy because it can play a crucial drought proofing function in the context of specific agro-climatic conditions in the State

⁶ Where tenancy arrangement is actually a labor contract, with other inputs being the sole responsibility of the owner, a finely worked out share of total produce is offered, depending upon the overall economic environment.

⁷ According to a local saying, only one in four years is a good crop year. For the rest of the time crop production is affected to a varying extent due to shortage and untimely nature of rainfall.

While animal husbandry plays a crucial role, its importance is tempered by the fact that the rich benefit more from animal husbandry than the poor

abandon their animals. Nevertheless, productive animals are rarely abandoned, rather drought leads to the jettisoning of the unproductive stock.

In terms of livestock reared, there are two main types of practices.

First is the milk animal based economy where the animals reared are cows and buffaloes. While Rajasthan was a traditional cow area, recent years have seen increasing ingress of buffaloes.

The **second** is the small ruminant, sheep and goat based economy.

In case of larger animals, animal holding is generally proportional to land holding, while in the case of smaller ruminants, goat ownership is very common among the poor, though generally, only small numbers are reared. On the other hand, sheep are generally reared in large herds. For smaller ruminants, there exist traditional communities who rear these animals in large numbers in most parts of Rajasthan, like the *Gujars* in the North Central and East and *Mers, Raikas, Rabaris* in the North and Western parts.

Impact on Household Income Status: An important finding from the *Aajeevika* survey has been the significance of animal husbandry in the livelihood profile, across agro-climatic zones in rural Rajasthan, from the Tribal South to the Desert West and from the Canal Irrigated East to the Semi-Arid North Central regions (Table 8, p.67).

The importance of animal husbandry emerges clearly both from the occupational classification of the work force and

as well as from the analysis of household incomes.

Household income analysis indicates that the contribution of animal husbandry is around fifteen percent all over Rajasthan, varying from a low of 13.5 percent in the Tribal Areas to a high of 17.8 percent in the Semi-Arid zone.

Occupational classifications from Census, 1991 (the last census for which this detail is available) put population engaged in animal husbandry and other land based activities like forestry and fisheries, at only 1.9 percent. In contrast the *Aajeevika* household survey estimates proportion of workers engaged in this sector ranging from a high of 12.7 percent in the Semi-Arid areas to a low of 6.3 percent in the Desert areas⁸.

While animal husbandry plays a crucial role, its importance is tempered by the fact that the rich benefit more from animal husbandry than the poor. However there is significant variation across different regions, as evident from the shares of animal husbandry in annual household incomes for different economic classes (Table 8, p.67).

In general, for the rural poor (i.e., those with annual household incomes less than Rs.20,000), a lower share of total household income comes from this source in all regions, except the Tribal South, where the share of income from animal husbandry is slightly higher for the poor than for the rest of the population.

For the poorest classes (i.e., those with annual household incomes less than

⁸ Taking into account the male bias of the census and comparing *Aajeevika* survey results for the male population reveals that a high proportion of male workers are engaged in animal husbandry, ranging from 9.7 percent in Desert areas to 1.6 percent in Tribal South.

Rs.10,000), the share of income from husbandry is even lower in two regions - Semi-Arid North and Desert West - whereas in the Tribal South and the Canal Irrigated Areas, a higher share of household incomes comes from this source.

For the Tribal South increased share of income of the poor from animal rearing is explained by the constraints faced by the rural poor. Mostly these sections are unable to migrate from the area and are therefore dependent on supplementary income from animal husbandry. In Canal Irrigated Areas, on the other hand, prevalent conditions favor rearing of milk animals even by the landless, as fodder is cheap.

Ultimately a higher share in household income does not imply higher absolute income levels, as the base incomes for the general population are two to three times that of the rural poor.

2.3.3 Migration

Main Characteristics : Large parts of Arid and Semi-Arid areas of Rajasthan have a tradition of migration during years of drought, for as crops dry up and fail, everyone is forced to look for work. In years of extreme drought, locally known as *mahakaal*, entire households and villages would migrate in search of food and fodder and local folklore and literature is rich with vivid descriptions of movements of people and cattle on account of drought⁹.

While drought definitely increases migration, with the increasing reach of the Welfare State, extreme effects such as

exodus from villages no longer occur. In fact, migration is no longer simply a drought induced phenomenon. Increasingly it is becoming integral to the work cycle of thousands of rural males, who migrate to augment household incomes and this is occurring even among castes who normally do not undertake wage labor. As communication networks improve and even remote villages become accessible by road and transportation, migration is becoming a regular feature of the rural economy in the State.

The nature of migration and motivation to migrate differs across regions and across different segments of the population. For instance, in the Tribal South, migration is almost universal amongst tribal families in view of the total lack of local livelihood opportunities. In the same areas, non-tribals also migrate, but for other reasons, e.g. in search of better opportunities. In the Desert West, families with small land holdings, belonging to scheduled castes and tribes migrate the most, and other communities undertake opportunity-driven migration in search of better incomes. In the Semi-Arid zone with a significant non-farm sector, migration is more a result of pull factors, with people migrating mainly to augment their earnings. Only in the Canal Irrigated East does migration appear negligible (Table 9, p.67).

Metropolitan economies of western India generate a stable and high demand for labor which is met by the migrating populations from the State. For instance, the Tribal South is the traditional catchment

Migration is no longer simply a drought induced phenomenon. Increasingly it is becoming integral to the work cycle of thousands of rural males, who migrate to augment household incomes

⁹ 'teen mahakaal, jad ma na poot mila na paachha', goes a Marwari saying. There are three years of extreme drought (in a century) when the mother and the son separate never to meet again.

area for supply of manual laborers to Gujarat. With increasing demand for labor the boundaries of this catchment area have been expanding further north and include not just Udaipur and Dungarpur, but also the Rajsamand, Bhilwara and Chittorgarh districts.

While migration is undertaken by all segments of the population, households lower down the social order are more likely to migrate than others, as it provides an escape from the local milieu of social and economic oppression. For instance, in the Semi-Arid North Central areas, migration provides an opportunity for castes lower down the social hierarchy to move out and augment their incomes.

Migration is almost exclusively a male phenomenon in Rajasthan, with the household survey results showing female workers comprising less than four percent of total migrants. Also the overwhelming majority of migrants is in the age group of twenty to forty years as migrant labour is expected to perform some of the hardest physical tasks. Thus only the young and robust are able to get absorbed. Evidence from blocks such as Dhariyawad suggests that even children as young as 14 years migrate with migrant shepherds from western Rajasthan.

Remittances and Impact on Household Economy : Generally when migration is undertaken under conditions of distress because no other options are available locally, incomes from migration are used to support household consumption. In these cases there is no capital formation in the migrant's household, which continues to remain mired in

poverty. Migration of tribal males from South Rajasthan is of this "brink of survival" nature.

In the same region, migration by non-tribal peasant communities is not undertaken under conditions of distress, but with a view to exploit the improved opportunity cost of their labor in other areas. In these cases, incomes earned and saved from migration are invested in agriculture or other enterprises at home.

Analysis of income patterns of the poorest households (Table 5, p.66) shows that there remains a very poor segment which is not able to migrate, as migration requires a certain level of human and financial capital. Also households should be in a position to spare labour from the daily chores of the household. Therefore migration is an option beyond the reach of the poorest classes in the rural areas.

The proportion of income remitted home is high in all the areas studied (Table 9, p.67). However, the bulk of the remittances tend to be used up for consumption. In fact, only sixteen percent of respondents in Dhariyawad (Tribal South), twenty-five percent in Dudu (north central region), and forty percent in Pokhran (Desert West) reported using remittances for investments at home, mainly on farm equipment and assets. In addition, such earnings are also often used to repay loans incurred in the past.

The remittance from migration should be viewed in perspective of the fact that most often it is not easy to save from the meager incomes the migrant population earns from wage labour. For they

The proportion of income remitted home is high in all the areas studied. However, the bulk of the remittances tend to be used up for consumption

incur major expenses related to lodging, boarding and travel, while food expenses constituted the highest proportion of total expenditure during migration in all the survey areas.

Problems faced in migration : Migration is a problem-ridden option for the poor and distressed.

- Given the highly casualised nature of the labour markets that the migrant workers enter, security and stability of employment is minimum. Most migrants are able to find only casual employment and there are long periods during which they are laid off. Lack of work is aggravated in times of drought, when urban and industrial centres are flooded with migrant labour.
- Hard manual labor and low dietary intake lead to a host of health related problems. The migrant workers often have to work long and difficult hours and may face serious exposure and risk to life and limb. As a result of frequent sickness and injury, health related expenditures go up and there is a decline in the ability to maintain a working life.
- Generally male adults are forced to migrate alone and they leave responsibilities at home, which remain unattended, thus affecting and disrupting family life. Further, the demands of agriculture related work at home, force migrant workers to travel to and fro, from their workplaces to their homes several times in the course of a year. In fact, on an average migrants may be making as many as four to six trips home every year, which

considerably increases the expenditures they incur.

From the overview of the rural economy at least three major trends regarding the changing pattern of rural livelihoods become apparent.

First, the contribution of land based production to rural livelihoods is steadily decreasing in significance and stability. This is borne out by the rapid decline in share of workforce in agriculture and related occupations in the tribal (45 per cent) and the semi-arid zones (29 per cent). In fact even for the other two regions, the share of agriculture in household incomes is not as high as suggested by the occupational classification regarding its share in employment. Also this share is declining and in particular for the rural poor, the contribution of land based livelihoods, to total household income is quite low as compared to the rest of the population.

Second, it appears that even though diversification opportunities are available, the rural poor are only able to diversify into activities marked by low returns and low security. While household incomes from non-farm sources are important for the rural poor in the Semi-Arid North Central and Desert West (accounting for just over a third of total incomes), in the other two regions this proportion is lower at around ten per cent.

This study indicates that typically new livelihood options for the rural poor lie at the lower end of a changing and growing economy, either in traditional skill based occupations (like hair cutting, earthen pot making, flaying of dead animals and even fortune telling),

It appears that even though diversification opportunities are available, the rural poor are only able to diversify into activities marked by low returns and low security

or in new occupations in retail sale, like selling vegetables or vending household items like bangles. Better-off sections within the rural economy are able to access more formal and stable job opportunities in the government and army.

A **third** important emerging trend is that migration is playing an increasingly important role in the livelihoods of rural

poor, in all except the Canal Irrigated Areas. However, there remains a very poor segment which is unable to migrate. This is because migration requires a certain amount of capital, both financial (e.g., investment in travel) and social (in terms of networks that allow people to access jobs in distant markets). The very poor, who have access to neither, remain trapped in poverty.

Rural Livelihoods : A Regional Profile

This section highlights a number of interesting differences in patterns of rural livelihoods across Rajasthan and analyses how these can be explained in terms of variations in region-specific endowments of livelihood resources and opportunities. In particular, livelihood options available to the rural poor (who are mostly landless or at best, marginal and small farmers) in each region are analysed in the light of the specific constraints faced by them.

In what follows specific livelihood patterns in each region are discussed. The principal occupation categories used for the analysis are: agriculture, animal husbandry, wage labour, household industry, non-farm activities (other than migration) and migration.

3.1 Livelihood Patterns Across Four Socio-Ecological Regions

3.1.1 Tribal South

The household surveys for this region were carried out in two villages (Ovra and Shobh ji ka Guda) in the Dhariyawad block in Udaipur district.

Important Livelihood Strategies

- **Agriculture intensification** in the Tribal South is low and limited, existing in isolated pockets wherever micro-irrigation has been developed

through investments in groundwater extraction. However, this intensification process is mainly led by the non-tribal peasantry.

- **Animal husbandry** is also a relatively minor income source for the tribals. Again it's primarily the non-tribal peasantry with agriculture surplus, who are able to undertake animal husbandry as an economically viable activity.
- **Local wage labor** generation in the area is low, as the agriculture sector is depressed.
- There is virtually no industrial activity with the potential to generate local employment. As such there is **negligible diversification** in non-farm sector activities in the Tribal South. Poor agriculture, weak infrastructure and access and low development of the service sector together indicate that diversification has not occurred in this area.
- **Migration** has become the predominant source of income for the region as a whole and for the tribal communities in particular. Typically the workforce originating from this area undertake casual wage labor in the unorganised, labor-intensive activities (such as mining, *bamaali* and construction work) in Rajasthan and beyond.

Migration has become the predominant source of income for the region as a whole and for the tribal communities in particular

Livelihood Options for the Rural Poor

The Tribal South region presents a special case in that these areas have very equitable land holding and landlessness is very low. In fact according to the *Aajeevika* survey, almost eighty eight percent of farmers come under the category of marginal and small farmers and there are practically no large farmers (see Table below), with the few medium farmers present generally hailing from upper caste groups.

However the contribution of agriculture to family incomes is quite low across the Tribal region. In the course of the survey, no alienation of land was observed, but the share of agriculture in total household incomes seems to be declining.

This is mainly because of the extremely meager land holdings, which continue to be operated because of lack of alternative employment opportunities in the region. In particular low overall incomes lower the opportunity cost of female labour who, for a variety of reasons, often cannot migrate as the males do, and hence continue to work the land.

Indeed agriculture in the Tribal areas plays a secondary role to other sources of livelihoods, mainly migration. The

importance of migration in this area is underscored by the fact that almost two thirds of the families report migration and almost one half of total family income is derived from this source. In particular tribal families are more likely to migrate than non tribals, even though average income from migration for tribals tends to be lower than for the non tribals.

3.1.2 Semi-Arid North Central

The household surveys for this region were carried out in two villages (Gagardu and Malyawas) in the Dudu block in Jaipur district.

Important Livelihood Strategies

- A high degree of *agriculture intensification* is observed in this region.
- Introduction of cash crops (at times for markets as distant as Mumbai) has been the main driving force behind this intensification process. Cash cropping has overtaken the traditional subsistence-based crop production system
- There have been remarkable changes in sharecropping and tenurial arrangements. For instance, reverse tenancy has begun to feature as a fairly common practice. Other features of agriculture in the region

Low overall incomes lower the opportunity cost of female labour who, for a variety of reasons, often cannot migrate as the males do, and hence continue to work the land

Agriculture in the Tribal South

Category of farmer	Number	Average land holding	Per hectare income	Per hh income	Share of agriculture in hh income (in %age)
Landless	3	0	0	10327	0
Marginal	53	0.61	8363	22828	22
Small	16	1.38	6128	23973	35
Medium	6	2.71	3631	70627	14

Source: *Aajeevika* household survey

include mechanization and intensive mining of the limited ground-water available.

- Agricultural intensification is primarily led by the affluent peasant castes, some of whom have also diversified into other sectors and are able to plough back surpluses on their lands.
- There has been *significant diversification* in this region, evident from the fairly high incidence of service sector (transportation, small manufacturing, repairs, hotel and catering activities) activities and formal employment in government and private sector jobs. Essentially the presence of an affluent peasantry and the proximity of the region to major urban centres provide the overall context for diversification. However, mainly the richer sections are able to diversify at higher ends of the economy, while the poor are unable to diversify beyond locally available, low-value options.
- *Migration* is also significant in this region, and is primarily fuelled by the easing out of small and marginal farmers from agriculture and household industry due to rising investment costs and poor returns. On the demand side,

the proximity to major urban and industrial centers offers a range of opportunities for wage labour on a regular basis. As such migration in this region is less casualised and not distress driven as in case of the Tribal South.

Livelihood Options for the Rural Poor

There is evidence to suggest that smaller land holdings are not sustainable in the Semi-Arid North Central zone.

- Returns per hectare from agriculture tend to increase with size of land holding in the area¹⁰ (see Table below).
- Also the share of agriculture in household incomes increases with holding size.
- Even for medium-scale farmers only a small proportion of total household incomes comes from agriculture, whereas this share is substantial for the larger farmers.
- This region has seen increasing incidence of reverse tenancy (with larger land and tractor owners leasing in lands of small farmers for cultivation) and the process is strengthened by the ample availability of wage labour in the surrounding areas.

There has been significant diversification in this region, evident from the fairly high incidence of service sector (transportation, small manufacturing, repairs, hotel and catering activities) activities and formal employment in government and private sector jobs

Agriculture in Semi-Arid North Central Region

	Number of hhs	Average land holding	Per hectare income	Per hh income	Share of agriculture in hh income (in %age)
Landless	12	0	0	14990	3
Marginal	6	0.6	2436	20935	7
Small	9	1.2	1100	23299	5
Medium	17	2.7	1161	35513	9
Large	22	6.8	1889	41357	31

Source: *Aajeevika* household survey

¹⁰ The only exception is marginal farmers, but this finding may be discounted due to the smallness of the sample size.

The incidence of migration in the Semi-Arid North Central area is significant, affecting a third of the total number of households surveyed

The main factors that tend to make small holdings unviable in this region are as follows:

- High returns from cultivation of cash crops like *moong* and peas making it profitable for large owners to aggressively pursue a policy of increasing the size of operational holdings.
- Typically the high returns in Semi-Arid cash crop agriculture are also accompanied by high risks (in event of failure of monsoon). As such most often commercial agriculture is not a viable option for smaller farmers with lower risk-taking capacities.
- Alternative employment opportunities and high wage rates tend to make it profitable for small and marginal farmers to shift out of agriculture and take up more remunerative options.

Migration in this region is lower than in the Tribal South, nevertheless the incidence of migration in the Semi-Arid North Central area is significant, affecting a third of the total number of households surveyed.

There is not much difference between the average land holding sizes of migrant and non-migrant households, in fact it is slightly higher for migrant households. However the proportion of scheduled caste families migrating is higher than other communities and average income from migration for the scheduled caste migrant families is also significantly higher than for other migrant households.

3.1.3 Desert West

The household surveys for this region were carried out in two villages (Rathora and Kelawa) in the Pokhran block in Jaisalmer district.

Important Livelihood Strategies

- In this region agriculture extensification has occurred on a large scale in the recent past, aided by the onset of tractor cultivation which has helped in the opening up of new lands on a large scale, including pastures and fallow lands.
- Agriculture intensification in the Desert West has been very limited except in two kinds of smaller pockets. First, in the command area of the IGNP canal and second, in areas where tube well based irrigation has been initiated. In fact wherever irrigation has been made possible, farmers have changed over to cash crops like *gnar* or chillies.
- Traditionally animal husbandry, particularly in smaller livestock like sheep and goats has been the mainstay of the desert economy. However, a number of changes are occurring in the nature of livestock rearing and its economy. Animal transhumance remains a regular feature, though adversities surrounding it are becoming more complex. Increasingly, smaller herds are becoming unviable and only larger herd owners are able to survive the market.
- Diversification in the Desert West is also significant as borne out by the high shares of “other income” and “household industry” in household incomes (Table 3, p.65). This is somewhat surprising, as the engine of growth is not immediately apparent. In fact both agriculture and industry are poorly developed in the desert region and the high income from other sources is mainly due to remittances

in the form of army pensions and rentals from local transport. In particular the latter is significant, as the vast distances in the desert regions need good means of transportation even for basic necessities like water.

- Migration out of the Desert West areas is also quite substantial and is directed not only towards the agriculturally well-endowed region of the IGNP command area and Punjab, but also to other urban and industrial regions for wage labour. As in the other regions, migration is distress driven among the poor and opportunity induced among others.

Livelihood Options for the Rural Poor

Evidence from the *Aajeevika* household survey suggests that the small land holdings continue to provide a stable livelihood option in Desert areas.

- In the Desert West, unlike in the Semi-Arid zone, per hectare returns actually tend to fall with an increase in land holding size (see Table below). This is a fairly common phenomenon in Indian agriculture and is mainly interpreted as being the result of higher labor inputs by small landholders.
- In this area the share of agriculture in total household incomes contin-

ues to be a function of land holding size and increases with increase in the size of holdings.

The stability of small-scale agriculture in the area can be traced to the following factors:

- Low scope for cash crops and commercial farming makes it impractical for large farmers to pursue land aggrandizement practices at par with those in the semi arid regions.
- Given the relatively high availability of land, a further increase in size of operational holdings is not an immediate concern of the larger farmers.
- Lack of alternative employment opportunities for small and marginal farmers, makes them adhere to their agriculture holdings for longer.

Finally, in the desert areas the incidence of migration is significant affecting around one sixth of the total number of households. The village listing of households however indicated that over a third of the households were involved in migration.

Unlike in the Semi-Arid areas, land holding of migrant households is significantly lower than that of non-migrant households.

A point of similarity is the higher incidence of migration among scheduled caste and tribe families. In this context

The small land holdings continue to provide a stable livelihood option in Desert areas

Agriculture in the Desert West

	Number of hhs	Average land holding	Per hectare income	Per hh income	Share of agriculture in hh income (in %age)
Landless	4	0		15025	0
Marginal	11	2.2	884	11303	17
Small	16	5.6	887	18023	27
Medium	18	9.3	617	13662	42
Large	19	24.0	468	31537	36

Source: *Aajeevika* household survey

the numerically small community of *Bhils* in the west deserve special mention – almost all the *Bhil* households migrate every year. However income from migration for the scheduled caste and tribe families is significantly lower than that of the other migrant families.

3.1.4 Canal Irrigated East

The household surveys for this region were carried out in two villages (Kothya and Bhairoopura Ojha) in the Taleda block in Bundi district.

Important Livelihood Strategies

- In this region, agriculture intensification is the overwhelmingly dominant livelihood strategy, primarily led by the widespread coverage of canal irrigation and development of groundwater resources. There is a high degree of mechanization of agriculture and a near complete shift in favour of high value, commercial crops based on high cost inputs.
- Animal husbandry is an important secondary source of income across all sections of the population, including the poor. In fact a sound agricultural base is what makes animal husbandry a viable option across this region.
- Diversification is also high across the region, again principally led by a well developed agricultural sector.

- Local wage labor generation is high and reasonably stable in terms of wage rates and demand. As such, there is negligible out migration from this region and the Canal Irrigated East in fact, attracts in-migration.

Livelihood Options for the Rural Poor

The *Aajeevika* survey results indicate that relative incomes from agriculture are higher for large land owners, whose per unit returns are higher mainly because of the highly capital intensive nature of farming.

While comparative returns are lower for the smaller land owners, in absolute terms these returns are fairly high, so that even small holdings are viable in this region.

However, apart from viability of small scale agriculture, lack of opportunities in the non-farm sector is another factor that compels smaller land holders to adhere to their land.

Returns per unit of agricultural land are also high. In fact, per hectare returns from agriculture are high for the marginal land holders, decreasing thereafter for small farmers, only to increase with further increase in land holding sizes, for medium and large farmers (see Table below).

Agriculture in Canal Irrigated East

	Number of hhs	Average land holding	Per hectare income	Per hh income	Share of agriculture in hh income (in %age)
Landless	15	0	0	11451	0
Marginal	28	0.5	8493	13843	31
Small	12	1.6	5411	23904	37
Medium	5	2.9	9498	35183	77
Large	9	4.7	11521	69800	78

Source: *Aajeevika* household survey

In the Canal Irrigated East, animal husbandry is an important secondary source of income across all sections of the population, including the poor

Household incomes are also highly correlated with the size of land holding, with the share of agriculture in total household income increasing with holding size. This share is around a third for the small and marginal farmers and around three quarters for the medium and large land holders.

However, the incidence of landlessness is high in the Canal Irrigated East, which is often the case in areas that develop intensively with irrigation and mechanisation in agriculture.

Finally, there is virtually no migration out of the Canal Irrigated East. In fact the region even attracts migrants from other areas, which often serves to depress agricultural wages in the area.

3.2 Changes and Sustainability of Regional Livelihood Patterns

Having outlined some of the important livelihood strategies across regions, this section now comments on the nature of changes in these livelihood patterns and on the sustainability of such changes.

3.2.1 Changing Pattern of Livelihoods

Comparison of the *Aajeevika* survey findings with the Census figures for 1991¹¹ reveal that the Tribal South and the Semi-Arid North Central regions have exhibited the most change in terms of occupational profile (Table 2, p.65).

The share of agriculture and allied occupations declined by forty five percent-

age points in the Tribal South and by twenty nine percentage points in the Semi-Arid North Central regions over the past eleven years¹².

However the underlying reasons for the marked change in the two areas differ :

- In the Semi-Arid North Central region, change is led by a rapidly growing non-farm sector mainly because of the presence of clusters of economic growth in nearby towns and along the national highway that passes through the region. A buoyant agriculture and well-established animal husbandry add to this, taking this region far ahead of the others in terms of economic indicators.
- The reasons underlying extreme changes in the Southern Tribal areas are altogether different. The falling share of workforce in agriculture in this region is primarily due to the rapidly increasing demand for wage labor in the urban and rural areas of Gujarat and the consequent rise in opportunities for migration.

In contrast, occupational profiles in the desert areas do not reveal significant changes. This is an area with a recent history of agriculture extensification, with marginal lands being brought under the plough over the last three decades. However the livelihood profile indicates declining importance of agriculture, with opportunities for diversification, including migration increasing gradually.

In the Semi-Arid North Central region, change is led by a rapidly growing non-farm sector mainly because of the presence of clusters of economic growth in nearby towns and along the national highway that passes through the region

¹¹ For issues relating to problems of comparability between *Aajeevika* survey results and Census figures, and how these are sought to be resolved, see the explanatory notes in the Appendix.

¹² In part, this sharp decline may be attributed to methodological issues, but even then this is a sizeable decline given the short period under consideration.

A livelihood strategy is sustainable if it does not lead to an irreversible deterioration of natural resources and it is able to overcome the effect of sudden changes

The Canal Irrigated Eastern area seems to be the most stable in terms of occupational profile. Both occupational and livelihood portfolios indicate a stable and well developed agriculture. Indeed some changes are taking place in the region but this is mostly linked to the growth of agriculture related business opportunities.

3.2.2 Sustainability of Livelihood Options

The livelihood framework adopted for the *Aajeevika* study asserted that a livelihood strategy is sustainable if it does

not lead to an irreversible deterioration of natural resources and it is able to overcome the effect of sudden changes.

As such the sustainability of the major livelihood strategies is explored in the table below, where available livelihood option for each region are classified as being of high, medium or low potential based on an appraisal of the existing economic and natural environments.

Finally attention is drawn to an important factor, viz., the viability of agriculture, especially for the poor, small and marginal farmers.

Sustainability of Livelihood Strategies across Rural Rajasthan

Strategy	Area where pursued	Sustainability	Analysis
Agriculture intensification	Canal irrigated east	Medium	Water availability from Chambal canals may be declining on a long term basis as result of water harvesting structures coming up in the upstream parts of MP. If true, this will <ul style="list-style-type: none"> • increase conflict between head and tail end farmers • force the system to find a new equilibrium
	Semi-arid north central	Medium	Groundwater potential tapped fully and most parts have turned critical. However as surrounding areas continue to develop as a result of further growth in nearby economic clusters, reverse tenancy may increase, concentrating land in hands of a few large farmers.
	Desert West	Medium/low	Intensification in desert is taking place in two areas – IGNP and tube well areas. However sustainability in both cases is in doubt. Low arrivals in IGNP areas have already led to reduction of land rates and a certain amount of de-settlement (where settled people have gone back). Sustainability of tube well irrigation is also in question.
Diversification	Semi arid north central	High	The surrounding economic clusters – Jaipur city, marble and weaving cluster at Kishangarh, and the NH – all seem poised for further growth.
Migration	Tribal South	High/Low	Demand from destination areas is likely to grow thus ensuring that migration will continue. However the social and human costs of migration are very high in terms of the toll it takes upon family and social life and the health of the individual. This adds an element of unsustainability.
	Semi arid north central	High	For the same reason as mentioned under diversification.

In terms of contribution of agriculture to the livelihoods of poor households it was found that by and large

- Agriculture is an unstable, non-remunerative enterprise for small landholders in the Semi-Arid North Central parts of the State.
- It is a stable, but low return livelihood option for the resource poor in the Desert West
- It remains viable in the Tribal South mainly because of lack of alternative opportunities
- Only in the canal irrigated conditions of the east does agriculture become a viable enterprise for small and marginal land holders.

Access to Productive Livelihoods : Social Reality and Government Policy

The resource base of a region on which livelihood development takes place comprises a number of different capitals, viz., Natural, Human, Social and Political capitals

This section explores the wide range of factors that influence and impinge on the choice of new livelihood options. In particular the role of a number of social and political factors is analysed, along with the importance of two specific factors, viz. access to education and infrastructure, that are widely accepted as important in influencing access to productive livelihood opportunities. This is followed by an appraisal of existing government programs meant to address the problem of rural poverty and suggestions for rethinking official poverty alleviation strategies.

4.1 Factors Governing Access to Productive Livelihoods

In what follows, the importance of endowments of various categories of livelihood resources is assessed and in light of this, the forces explaining changing access to employment opportunities are explored. This is followed by a specific analysis of two important factors widely perceived as having significant influence on livelihood choices, viz., education and infrastructure development.

4.1.1 Livelihood Capitals in Rajasthan: A Socially Determined Reality

The resource base of a region on which livelihood development takes place comprises a number of different capitals, viz., Natural, Human, Social and Political capitals and the distribution of these different capitals varies across different communities.

For the purposes of this analysis three socio-economic categories have been identified¹³:

- The lowest strata comprising of the scheduled caste and scheduled tribes communities
- The intermediate strata comprising the intermediate castes and the lower strata of the peasant castes;
- An upper strata comprising the three *savarna* castes and the locally dominant peasant castes.

The following discussion focuses on how access to different livelihood capitals is governed by socio-political factors like caste, kinship and political ties.

¹³ While the first two categories parallel the castes classified under the statutory definition of the scheduled castes and tribes and other backward castes, these are not congruent. This is because in each strata a number of castes are included on the basis of their political strength rather than simply their socio-economic status. For instance, the *Meenas* in north central and east Rajasthan have been enumerated under intermediate castes; *Jats* have been included in the upper section for this study by this criterion.

Natural capital

Land, water, and animal resources are the principal components of natural capital considered. How these natural resources are distributed and how that affects livelihood choices are explored here.

Historically the distribution of land in India has been skewed and community specific. This pattern is reflected in Rajasthan also. However, with the exception of the canal irrigated areas, the State does not have high landlessness, as in case of a number of other States. However, within this near universal land holding pattern, holding size is highly correlated to caste and community status (Table 10, p.67). Holding size tends to be largest for the upper castes in all areas, except the Tribal South, which is characterised by relatively homogenous societies.

The unequal nature of land distribution is further accentuated by differentiated access to water and irrigation. Historical patterns of settlement ensured that peasant communities settled in areas with better surface and groundwater. In fact prior to Independence rulers of princely States often invited peasant communities from other areas to settle in their area with a view to augment their own State incomes. Naturally the new communities were allocated land with access to water¹⁴.

This trend continues in more recent times as well. New areas have been covered by canal irrigation, where typically the better off sections manage to purchase land at the head-end of the canals. This

has been the case with IGNP in western Rajasthan where, following the alignment of the main canal, rich farmers have purchased land along its course. In the eastern areas of Chambal command area also, there has been an influx of well-to-do Sikh farmers from outside the State who have managed to build up sizeable land holdings.

This trend was clearly visible in areas where the *Aajeevika* field work was conducted (Table 11, p.68) :

- In the Shobji ka Guda village in Dhariyawad block, the small but relatively wealthy peasant community of Dangis had access to better land, lying in the downstream areas
- In the Taleda block of Bundi district in the Canal Irrigated East, the best areas lying around the main river flowing through the region are occupied by the peasant caste of *Dhakars*
- In the Semi-Arid North Central region, upper caste communities have almost sixty-nine percent more land than the scheduled caste farmers; while this ratio is 2:1 in the tribal areas.

There are also strong community linked patterns to livestock rearing in Rajasthan. The State has traditional pastoral communities whose chief source of livelihood is derived from livestock husbandry. This is the case with *Gujars* in central and eastern parts and *Rabari*, *Raika*, and *Mers* in the western parts.

In some cases, changing land use patterns have led to pastoral communities taking to farming. However the community-wise patterns of livestock continue

The unequal nature of land distribution is further accentuated by differentiated access to water and irrigation

¹⁴ This trend led to settlement of *Jat* communities in the northern parts and *Patidar* communities in the southern parts of the erstwhile State of Mewar.

In a traditionally unequal society, education is expected to upgrade human skills and help people break out of the traditional strangleholds of poverty and discrimination. Yet even today access to education continues to be highly dependent on caste status

to hold, particularly in the case of smaller animals like sheep and goats, while milch cattle holding is generally correlated to agriculture prosperity.

Human capital

Human capital is a key and critical resource in the negotiation of livelihood choices and opportunities. In a traditionally unequal society, education is expected to upgrade human skills and help people break out of the traditional strangleholds of poverty and discrimination. Yet even today access to education continues to be highly dependent on caste status.

While some communities have made use of education and accessed new opportunities, others have lagged behind. For example the *Rajput* community has taken up government jobs in large numbers, as have the *Meenas* of central and east Rajasthan, who have used education and reservation to move into government jobs. On the other hand, the *Bhils* and *Meenas* of South Rajasthan have not been able to adequately access educational opportunities and have been unable to join the new and emerging sectors of economic and political life.

The *Aajeevika* study confirms that the maximum number of years an individual is able to attend school is highly correlated to the caste status of the family. Castes lower down the social ladder have lower years of education, even though within this overall reality, there is significant differentiation across regions:

- Differences between castes in terms of educational attainment are highest

in Canal Irrigated East and lowest in the Semi-Arid North Central, reflecting the level of income inequality, which is lowest in the Semi-Arid regions and highest in the Canal Irrigated areas.

- Scheduled caste communities have been catching up with the other castes in terms of education - in two of the four areas studied, viz., the Desert West and the Semi-Arid North Central regions, the difference between the two communities is quite small.
- On the other hand, the Desert West areas offer an interesting case study. Marked by generally low levels of schooling, there is little difference between the upper caste *Rajputs* and the scheduled caste and tribes groups. Further, the latter fare even better than the intermediate caste of *Mers*, a minority community.
- The minority peasant castes in the State are noted for their low educational levels, which to some extent also keeps them isolated from the mainstream. In fact in many ways, *Mers* parallel the case of *Meos*, another minority peasant caste settled at the other extreme in the Alwar-Bharatpur region of Mewat.

Social capital

Social, community and kinship networks play an extremely important role in determining livelihood opportunities and outcomes.¹⁵ The primary social networks in Indian society exist along caste lines. The ability to work together for common economic objectives is what transforms social networks into social

¹⁵ This is true even in advanced economies even though these are played out differently.

capital. Nearly all Indian castes have some system of traditional social organization. However in most cases the organization remains restricted to social issues as a forum for resolving community conflicts and disputes and does not move on to addressing economic or development issues.

The *Aajeevika* study confirms that castes and communities with an ability to bond and coalesce for economic objectives are more likely to progress :

- An example is the comparison between the *Dhakar* community with that of the *Meenas* in the Taleda block of Bundi district. The *Dhakars* have a high degree of cooperation among themselves and they have been able to diversify well across a range of businesses, mainly because community members can easily come together and enter into partnership deals for generating capital for business. However this is not the case with *Meenas* and except for individuals who have been able to secure government jobs, they continue to adhere to farming.
- Oral testimonies and discussions reveal the importance of social networks, especially in new and high-risk ventures for the poor viz., migration. The migration of *Suthars* (traditional

wood workers) from Pokhran is a case in point. With growing urbanisation and increasing demand for wood work in cities, *suthars* have migrated in large numbers, with nearly all of them heading for areas around Pune in Maharashtra, which indicates the high importance of kinship patterns in explaining migration trends.

The caste-wise pattern of livelihoods indicates the different livelihoods followed by different caste groups in the survey areas (Table 12, p.68) :

- Overall it is found that land-based livelihoods like agriculture and animal husbandry are more important for upper caste communities in all the areas.
- Diversification into non-farm based activities and migration are comparatively more important for the lowest strata of the scheduled castes and tribes.
- The position of intermediate castes lies between these two choices and varies across regions depending upon the special socio-economic conditions prevalent in these regions.

In fact the livelihood strategies being adopted by various caste and community groups can be approximated in the table below.

Oral testimonies and discussions reveal the importance of social networks, especially in new and high-risk ventures for the poor viz., migration

Livelihood strategy – Caste Linkage

Caste	Livelihood strategy
Upper castes	<ul style="list-style-type: none"> • Intensification of agriculture • Diversification into agro-business • Government jobs
Intermediate castes Artisan castes	<ul style="list-style-type: none"> • Migration • Diversification
Poor castes	<ul style="list-style-type: none"> • Wage labor • Migration • Diversification

Source: *Aajeevika* household survey

Electoral politics has seen a gradual widening of the social base of the communities that actively participate and demand benefits in return

The data also throws up some interesting regional contrasts with respect to livelihood strategies adopted by different communities :

- In the Semi-Arid zone, agriculture emerges as the dominant livelihood source for the forward castes, for the scheduled caste population migration accounts for over half of total household incomes, whereas, other sources are more important for the intermediate caste groups.
- In the Tribal areas there is not much variation in livelihood strategies across different communities, except for the fact that animal husbandry is more important for the non-tribal peasant castes settled in the area.
- In the Desert area, cultivation is equally important for all three communities. However animal husbandry is important for the Muslim and upper caste communities while it occupies a lower position for the scheduled caste population. Wage labor is important for both Muslims and scheduled castes, who also derive a significant part of their income from non-farm sources. In this area migration is most important for upper castes.
- In the Irrigated areas, by contrast, cultivation is the most important source of income for the upper and intermediate caste groups and wage labor for the scheduled caste sections.

Political capital

Politics plays a critical role in livelihood development at many levels. Communities and areas that are politically well connected ensure significant benefits for themselves. At the societal level politics

is the task of distribution of societal assets and naturally enough the more powerful sections try to secure maximum benefits for themselves.

Electoral politics has seen a gradual widening of the social base of the communities that actively participate and demand benefits in return. Prior to Independence, all power was in the hands of the ruling feudal elite. Since then politics has gradually “opened up” as more and more communities have been mobilized around political issues and identities.

A relatively new feature in Rajasthan has been the active participation of caste associations in raising political demands. In older times caste associations seldom intruded into political issues, because of the essentially local nature of the caste based organizations. Caste organizations were normally restricted to a certain number of villages in regions populated by members of the caste.

This feature has begun to change, especially for the more politically aware and numerous castes, who have gone on to form State level and even nation-wide organizations. The statewide organizations often have very explicit political agendas and at times are promoted for precisely this reason. One arena where caste organizations have been very active in Rajasthan is reservations in jobs.

Social and political life in the Rajasthan villages is governed by the dominant peasant castes, which are present in large numbers and have maximum access to land, the main productive resource in rural areas. As in the rest of the country, these were the first castes to enter

the electoral arena and challenge the hegemony of the old ruling elite. Most rural areas of Rajasthan have one or more such castes :

- *Jats, Rajputs, Gujars* and *Minas* are the dominant castes in the Desert West
- *Rajputs, Jats, Mers, Bishnois* dominate the Semi-Arid North Central regions
- *Meenas* and *Gujars* are most powerful in the Canal Irrigated East
- Local tribes and *Rajputs* form integral parts of society in the Tribal South. This is the only area where social organization is not governed by caste hierarchies of traditional Hindu society.

However with the passage of time, more and more castes and communities have been mobilized politically, including those at the lowest rung of caste hierarchy. Findings from the *Aajeevika* field survey reveal that while there are beginnings of political mobilization by the most oppressed castes, viz., the scheduled castes everywhere, its pace varies across regions. This section of society has been mobilized to the maximum extent mainly in north central region.

Given the social reality, political polarization in rural areas mostly occurs along caste lines. Naturally numerically large castes tend to dominate, thereby leaving out numerically smaller castes from effective political participation.

Finally, apart from access to different categories of livelihood capitals, the adoption of specific livelihood strategies is strongly influenced by the overall economic scenario. In particular, location near clusters of economic growth is conducive to development of the non-farm sector, as for instance, was observed in

case of the study block of Dudu, in Jaipur district in the Semi-Arid zone.

4.1.2 Factors Affecting Changes in the Pattern of Livelihood: The Role of Education and Rural Infrastructure Development

In the light of the discussion above, it is important to understand what factors influence the changing pattern of rural livelihoods in the context of a growing economy with new opportunities arising in different sectors across regions. The *Aajeevika* study indicates that, caste status, kinship networks, the overall economic environment and political clout are some of the most important factors affecting these changes.

Kinship networks and political connections play an important role in livelihood transformation. The area where this matters most is the entry into highly prized government jobs, as these jobs are the ultimate aspiration for most people. While there is a formal system of recruitment, in reality political connections together with kinship networks can wield considerable influence.

Political clout can also be useful in accessing public finance, as was the case with the heritage hotel scheme of the Rajasthan government that benefited owners of old palaces and forts. The importance of kinship networks in diversifying livelihoods in the non-farm sector, especially in establishing or expanding business networks by pooling financial and other resources has already been discussed.

In what follows, the role of two specific factors, viz., education and rural infrastructure development, are considered

Caste status, kinship networks, the overall economic environment and political clout are some of the most important factors affecting the changing pattern of rural livelihoods

Education plays a critical role in livelihood development, opening up new vistas of employment and improving returns

in turn, mainly because these are widely perceived as being instrumental in determining access to livelihoods and in creating and strengthening existing livelihood opportunities. In particular these are seen as important enabling factors that can potentially help individuals overcome important socio-political constraints in gaining access to productive livelihood options.

Education

Education plays a critical role in livelihood development, opening up new vistas of employment and improving returns.

There are major differences in education levels across the State (Table 13, p.68). Overall literacy rates are higher in North Central and Irrigated Eastern regions, areas that perform better economically, and lowest in the Tribal South, which is one of the poorest areas in the State. The only exception is the Desert West region where the rural community lags behind in education despite being comparatively better off economically, owing to socio-cultural factors.

Education is also a great leveler. The scheduled caste communities, which have been most depressed socially and economically, have made major strides

in education. While they still lag behind the dominant castes in rural areas, there is evidence to indicate that in a number of areas, they are gradually closing the gap. This holds immense potential for socio-economic change.

Enhanced education is not likely to lead to economic equality immediately, as economic opportunities are mediated through a complex web of legal political systems that remain under the control of the dominant castes. However education leads to increasing political awareness and mobilization, which in turn makes it possible to challenge the existing status quo and seek a better deal. This can be seen happening in the Pokhran block, a remote and highly feudal area in the Desert West, where the *Meghwal* community has begun to resist the centuries old exploitation by the dominant *Rajput* class.

Comparing average household incomes and education levels (measured by literacy rates) in different regions reveals that the blocks with higher literacy levels also have higher household incomes (see Table below). The Tribal areas are an exception, for these have literacy rates below Desert areas, even though household incomes are higher¹⁶.

Literacy rates and household incomes

	Tribal South	Semi arid North central	Desert West	Canal irrigated East
Literacy rate	31	60	42	57
Annual household income (Rs.)	22,621	30,897	19,381	23,918

Source: *Aajeevika* household survey

¹⁶ Extensive migration in the Tribal South explains the relatively higher levels of cash incomes for households as compared to the Desert West.

The relationship between household incomes and education can be seen at the individual level also by relating household incomes with the maximum education level of an individual in the household¹⁷. Comparing years of schooling for the poor households with that for the non-poor clearly shows that the latter have higher years of schooling for all the regions.

Average maximum years of schooling for different regions are indicative of the economic status of the region, with years of schooling for the economically better off regions being higher than years of schooling for comparatively poor regions. The better off Canal Irrigated and North Central regions have almost double the years of education (average years of schooling over eight) than the less developed regions in the Tribal South and Desert West.

Therefore there is a positive correlation between education and household incomes from various sources, observed across regions, communities and individual households. Better off regions have almost double the number of years of education than the less developed regions; poor households have fewer years of education than richer households and the better off communities have higher years of education than the comparatively backward communities.

However this correlation by itself does not establish that education will lead to better economic opportunities. It simply means higher income levels are generally associated with higher education levels, which in turn may open up newer

income augmenting opportunities for employment.

Infrastructure Development

Infrastructure plays a critical role in livelihood development of any area and the key components of infrastructure that were investigated under the *Aajeevika* study included electricity and roads.

Given the uneven development of infrastructure across the State, it is generally found that the more developed areas also have better infrastructure. Comparison of infrastructure indices for the survey blocks also revealed the same picture.

Each aspect of infrastructure surveyed is considered separately below.

Electricity : This is a critical resource required for development of both farm and non- farm sectors. While electricity is absolutely essential for industrial activities, even agricultural development in modern times is impossible without it. For one, falling water tables mean that irrigation by diesel pump sets from open wells is no more feasible. In fact open wells have disappeared from many farming areas and been replaced by deep borewells which require submersible motors that can only be run by electricity. Even Canal Irrigated areas like Bundi have seen a rush for installation of bore wells.

The electricity network in the study area is varied (Table 14, p.69), gives figures for electricity connections for different uses in two of the blocks surveyed) :

- Electrification has expanded rapidly in the surveyed block in the Tribal South, but domestic connections

There is a positive correlation between education and household incomes from various sources, observed across regions, communities and individual households

¹⁷ The maximum years of schooling for the family is equivalent to that of the individual in the family with the maximum number of years of education.

The importance of roads in triggering regional economic development is well recognized

remain relatively few and use of electricity for purposes of agriculture or industry is quite limited.

- In the Semi-Arid North Central region there has been extensive electrification and its use is high in both domestic and agricultural sectors.
- In the canal irrigated zone, electrification has been extensive, but the release of agriculture connections has been very limited. Going by the size of potential demand, the number of connections is actually quite low in comparison to other areas.

Roads : The importance of roads in triggering regional economic development is well recognized. In this respect findings from *Aajeevika* survey highlight interesting differences in road networks across rural Rajasthan (Table 15, p.69) :

- The Dhariyawad block in the Tribal South has a reasonable network of roads (two Major District Roads, seven Through Roads and fifteen Link Roads), and its coverage by road has grown in recent years. In fact all *Gram Panchayat* headquarters and villages with a population of over one thousand are connected with a road of some kind. A Core Network Plan for road expansion has been prepared based on the location of markets within the block. This plan will ensure road connectivity to two hundred and twenty-four villages with a population of more than one hundred and funds for the construction of roads will be made available through the Prime Minister *Gramin Sadak Yojana*, the Central Road Fund and the MP/MLA Local Area Development Fund.

- A second case study of the Pokhran block in the Desert West reveals the many challenges for public infrastructure and development imposed by the desert conditions and terrain. Being part of a border district with a continuous presence of army and air force personnel, Pokhran has a good network of roads. The national highway bisects the block and given the good network of roads, movement across the district within and beyond Pokhran is reasonably fast. The pattern of village settlement however presents a far more serious challenge in establishing connectivity since typically villagers live in isolated farms in distant hamlets that are not connected by roads. In fact these difficulties in access have strongly influenced the reach of public services and facilities such as health and education in the block.

It was hypothesised that the development of infrastructure which increases people's access to the external economy and environment (such as roads, communication linkages, rural transport) are likely to play a crucial role in reduction of poverty and access to livelihood options. In general while there exists a relationship between infrastructure development and overall economic status of an area (for instance, the more developed areas of Semi-Arid North Central and Canal Irrigated East have better infrastructure development), this study was not able to gather sufficient data to prove the link conclusively.

The analysis in this section indicates that actual choice and availability of livelihood

options, even in a modern diversifying economy, continues to be determined by social and caste identities and inequities. This is largely true, with a minor qualification. Livelihood strategies being pre-determined by social and caste identities, is especially true for natural resource-based livelihoods, for the distribution of natural capital is highly caste specific. And the inequities in the given distribution impose a major constraint on the poorer sections.

4.2 Rural Poverty Alleviation: Role of the Government

The government plays an important role in influencing access of the rural population, especially the rural poor, to livelihood options. In this context the *Aajeevika* study reviews the existing rural poverty alleviation strategies of the government and underscores the need for a fresh approach towards rural poverty alleviation programmes¹⁸.

4.2.1 Existing Approaches for Improving Livelihoods of the Rural Poor

Poverty alleviation has been one of the key objectives of the Indian State since Independence and current efforts in this direction could be classified under two streams :

- First, creating enabling conditions for the poor to live gainfully and honorably in a differentiated and stratified society like ours. It consists of an array of social legislation that seeks to

promote and protect interests of the poorest sections of the society. The range of legislation varies from positive discrimination policies in government, to labor laws that ensure decent working conditions for labourers in the unorganized sector.

- Second, implementing programmes that tend to benefit the rural poor directly. Direct programmes may be further sub-divided into three categories:
 - Those which make foodgrains available through the Public Distribution System outlets at subsidized prices
 - Those that provide relief to the rural poor by creating opportunities for wage labour employment
 - Those which attempt to improve income levels of the rural poor by providing them with assets which could be used for income generation.

The way they are structured, the first two categories aim at ensuring food security and at providing relief to the rural poor, respectively; while the third, specifically aims at lifting them above the poverty line.

Each of these three direct programmes of the government is discussed in detail.

Public Distribution System (PDS)

The State seeks to provide subsidized foodgrain to all families below the poverty line (BPL) through an extensive public distribution system and every *panchayat* has a designated ration shop.

Poverty alleviation has been one of the key objectives of the Indian State since Independence

¹⁸ In this context it is clarified that the *Aajeevika* study analyses different sources of livelihoods for the rural poor, but assessing the effectiveness of the government's poverty alleviation strategies in detail is not a primary objective of the study. However such programmes do affect available livelihood options of the rural poor. Therefore the basic functioning of these programmes in rural Rajasthan is briefly reviewed and a few problem areas highlighted, and a few suggestions made for rethinking strategies for better addressing the issue of rural livelihood promotion.

While wages earned from employment programmes have definitely brought succor to the poor, their contribution to household incomes can only be termed as marginal and incidental

However the PDS has been critiqued on several grounds. For instance, the most common complaint relates to bad targeting of the poor households. Another important drawback associated with the PDS has been the requirement of bulk purchases, which makes purchases by the poor difficult and forces them to approach private traders who sell foodgrains in small quantities.

In fact, except for Kerala and Andhra Pradesh, where a major share of the foodgrain requirements of the poor comes from the PDS, in most other States the poor procure only a small fraction of their overall requirement from this source.

Nevertheless all such operational weaknesses apart, the PDS is a well-intentioned programme aimed at providing food security for the poor.

Employment Generation Programmes

Currently the main government rural employment generation scheme is the *Sampoorna Grameen Rozgar Yojana* (SGRY). Earlier incarnations of employment guarantee schemes like the *Jawahar Rozgar Yojana* (JRY), Employment Assurance Scheme (EAS) and the Food for Work Programme were merged into the SGRY in 2001. From the early 1980s these schemes have been looked upon as major instruments of poverty alleviation. Further, the regular employment generation scheme was also supplemented by drought relief works that were launched in different parts of the State in 2002.

However, not much has been achieved via the programmes in terms of poverty

alleviation in a sustainable manner. While wages earned from these programmes have definitely brought succor to the poor, their contribution to household incomes can only be termed as marginal and incidental.

Typically physical works, approved by the *Gram Sabha*, are undertaken as part of the scheme, where the *Gram Panchayat* is the implementing agency and has to accomplish the approved works, combining labor and material costs in the ratio of 75:25. Under the scheme, the main works undertaken by *Gram Panchayats* are related to construction of rural roads, river works, de-silting and so on.

One problem area relates to the 'type of works' chosen under the scheme. Most projects are temporary in nature which fail to create permanent assets and infrastructure in the village. Further, the ceiling of twenty five percent on material costs (which has now been relaxed) militated against long-term infrastructure creation, which could substantially benefit rural livelihoods even after completion of the project.

These programmes were designed with the intention of providing basic minimum subsistence and temporary employment opportunities to the poor and so fail to address the longstanding objective of removing poverty.

Poverty Alleviation Schemes

Currently the main poverty alleviation scheme is the *Swarnajayanti Grameen Swarozgar Yojana* (SGSY), which came into operation in 1999, coalescing different programmes related to income generation. Under this programme

there is provision for the involvement of individuals, as well as for Self-help Groups (SHGs) formed by the rural poor, to seek financial assistance (both credit and subsidies) for undertaking productive activities.

The scheme was inspired by the good performance of NGO-sponsored SHGs in taking up income generating activities. However it has not taken off along expected lines even two years after its introduction. This is largely due to the fact that it still follows the earlier IRDP (Integrated Rural Development Plan)-mode of targeting the individual poor, as borne out by data generated in the course of this study.

In two of the blocks surveyed, only a few groups were able to get any support from the government (Table 16, p.69). While a large number of groups were reported to have been formed, only two groups in Dhariyawad and just four groups in the Taleda block were given loans for productive purposes. In fact in the Taleda block, of the three hundred and fifty-nine projects for which loans were disbursed, SHGs undertook only ten, while the remaining were taken up by individuals.

4.2.2 Poverty Alleviation Programmes: A Critique

An important point worth stressing is that the trajectories of the poverty alleviation programmes are usually decided without keeping in view other sectoral efforts operative in the area. In fact, “the strategy of IRDP has been questioned on the grounds that it is isolated from the main growth process in terms of resource allocation, technology as well as

sectoral development strategy; it is not planned along with other programmes of area or sectoral development; it is a household based programme and the schemes are not integrated with the development needs or resource base of the area” (Vyas et al., 1999, pp.181).

Thus it would appear that poverty alleviation programmes of the IRDP genre have limited potential for eradicating poverty as they do not consist of a series of directed efforts targeting the same set of households. Rather these have become separate programmes, which are not run in conjunction with a series of other initiatives whose ultimate targets are addressing specific need of the economically weak. Operational problems related to programme implementation, such as shortage of credit, inadequate understanding of the requirements of the poor, lack of adequate technical support, lack of marketing opportunities, inappropriate selection of activities etc. all spring out of this basic flaw.

Further, ARAVALI has been associated with a study on DWCRA (Development of Women and Children in Rural Areas) self-help groups, which brought out specific operational issues affecting the process of economic empowerment of groups (ARAVALI, 1999):

- Lack of proper guidance and stewardship for women’s groups while taking up enterprises
- Women’s groups depended mainly on captive markets and lacked marketing strategies which could give them a competitive edge
- There was no attempt to explore economic diversification opportunities in trade and service sectors.

The trajectories of the poverty alleviation programmes are usually decided without keeping in view other sectoral efforts operative in the area

The destitute and the considerably poor households need special attention and a patient, long-term approach, rather than the urgency, immediacy and target-orientation associated with these government programmes

The main constraints found in the DWCRA programme are generic in nature and will be faced by any programme or project on micro-enterprise development. The new government programme SGSY faces similar problems.

Ultimately income generation is a complex activity, which requires setting up of a high degree of strategic linkages across different support structures. Therefore such programmes can effectively address the problem of rural poverty in the long run only when the poor are made more capable of undertaking individual enterprise or when supportive agencies provide them with the necessary training, market and credit linkages. In fact the IRDP has been more successful with the poor who are relatively close to the poverty line and less with those who are lower. This is borne out by a study conducted in the Northern and Eastern districts of Rajasthan (Gyanchandani et al.,1987).

This serves to underscore the fact that the destitute and the considerably poor households need special attention and a patient, long-term approach, rather than the urgency, immediacy and target-orientation associated with these government programmes.

Recent research based on twelve villages in two Southern districts of Rajasthan indicates that over eighty per cent of households escaping poverty, managed to do so without government assistance (Krishna, 2003). This was possible due to income diversification, with at least one family member taking up additional occupation in the informal sector, where jobs

were mainly facilitated by contacts with friends or relatives in the city. Those who relied on agricultural incomes have invariably remained poor.

The study concludes that, “people in this region have overcome poverty mostly as a result of their own initiatives and with the help of their relatives and friends. Government assistance – or even assistance from any other external parties, including NGOs, business houses, and political parties - has very little to do with these results... programmes of direct assistance account collectively for a relatively small fraction of households escaping poverty” (Krishna, 2003, pp. 538). The author therefore, suggests re-orientation of such programmes, where in particular he is emphatic about the importance of provision of information regarding job opportunities via employment exchanges.

Even as the *Aajeevika* study broadly agrees with this argument, it should also be stressed that the poverty alleviation programmes can actually become more effective if handled with greater caution, planning and sensitivity towards the specific needs, capabilities and endowments of the poor. A few specific suggestions in this direction are made below.

4.2.2 Rethinking Poverty Alleviation

The findings of the *Aajeevika* study point to the need for thinking afresh on current approaches to poverty alleviation.

A Few Concerns

The existing approaches to poverty alleviation are based upon the concepts of rural regeneration and reconstruction,

with the basic objective being to promote local employment generation and to discourage migration and urbanization. The latter is evident from the complete lack of focus on the needs of the large numbers of rural poor who regularly migrate to cities in search of work.

The conceptual underpinnings of this line of thinking may be traced back to the Gandhian concept of self-sufficient village republics. However the villages and the encapsulating environment have significantly changed since then. It may be argued that traditionally also, villages were never autarchic and conditions have changed tremendously since the time of Gandhi. Villages are far more integrated with the wider economy than ever before, a fact which has direct implications for approaches to poverty alleviation. This study emphasizes precisely such issues while thrashing out a strategy for rural poverty alleviation.

Within the overall ambit of rural regeneration, a variety of State initiatives currently exist, which can be classified into the following categories :

- Approaches based on natural resource management (NRM) and development (e.g., irrigation and watershed development)
- Approaches based on micro enterprise development (e.g, the IRDP followed by the SGSY schemes)
- Approaches aimed at wage labor generation

The findings of the *Aajeerika* survey indicate that while the last one continues to be extremely relevant, the effectiveness of the first two is a moot point.

Generally, the micro-enterprise development approach has not delivered. Despite huge investments in income generation and micro-enterprise promotion schemes like IRDP and now the SGSY, their impact on the ground has been limited. While several clusters of micro-enterprises are flourishing, the majority of the State sponsored micro-enterprises have failed. As such the search for the ideal package that will promote entrepreneurship amongst rural poor continues, despite the unenviable track record of most schemes launched so far.

The usefulness of investments in NRM for the poor has also been limited due to the vagaries of weather, or due to low access of the poor to natural capital, or due to bad targeting of projects. The *Aajeerika* study also shows that the share of land based livelihoods has been declining in the rural livelihoods portfolios, and more so for the rural poor. However, investments in land based activities can still benefit the poor indirectly through additional food security in the long run, and via wage labor availability in the short and medium term.

Over the past decade or so, the contribution of migration to livelihoods of the rural poor has also been highly significant in certain parts of the State, which points to the need for projecting migration as a sub-sector that needs immediate attention and follow-up.

This also raises questions regarding the usefulness of heavy investments on NRM, which do not yield returns over the short run (as it depends on rainfall, pressure of human population on resources and a host of other factors). In

Villages are far more integrated with the wider economy than ever before, a fact which has direct implications for approaches to poverty alleviation

Investment in NRM has a significant role in improving the ecological niches, in which people live and earn their livelihoods

the recent past such investments in certain resource deficit areas of the State, proved insufficient for meeting subsistence requirements of the poor in the short run. The subsequent income gap was met with earnings from migration and from other employment generation programmes of the government (including drought relief work). However ultimately there can be no gainsaying the fact that investment in NRM has a significant role in improving the ecological niches, in which people live and earn their livelihoods.

A New Approach

The *Aajeevika* study suggests a new approach to poverty alleviation which envisages making the most of newly available opportunities, while consolidating the natural resource base which is the main foundation for livelihoods of the rural people. This approach strives to take care of both the short-run subsistence requirements of the rural poor as well as the long-run need for improving and maintaining the sustainability of the ecological locales in which people live.

This approach recognises that the majority of the rural poor enter the economic mainstream as wage workers, rather than as 'entrepreneurs'. And it aims at helping the rural poor gain new, competitive advantages in the new economic order, instead of keeping them engaged within the rural areas and in their poor communities, independent of the urban mainstream. It envisages meeting short-run livelihood requirements by creating local wage labour opportunities and facilitating migration alongside. For migration is largely a product of the lack

of local opportunities for gainful employment, and of the dynamism of the new economic order which opens up space for the rural workforce to be engaged in the industrial metropolis.

As such this new approach seeks to promote linkages of the rural poor with the wider economy, and it strives to achieve improved food security and local employment, without compromising the emergent need of looking upon wage labour as a key resource of the poor and making the most of it.

The *Aajeevika* study also showed that there remains a very poor section in rural areas, which is not able to access wage labour opportunities away from home. The specific needs of this category of the poor must also be addressed via local wage labour generation and appropriate social security schemes which can be accessed by them.

The new approach also stresses the need for continued investment in rural natural resources infrastructure which remains important even for the small and marginal farm families, for whom migration is mostly involuntary in nature. This calls for targeted investments in NRM, which are clearly directed towards improving household food security and diversification, rather than being subsumed in a package of overall and generalised NRM, as was the case earlier.

In particular the *Aajeevika* study suggests three main strands of future action :

- It stresses that wage labour, migration and urbanization be rendered into a positive opportunity for those amongst the rural poor who have few other options.

- It highlights the need for ensuring a minimum livelihood support for all those who are unable to migrate owing to poor capabilities and endowments.
- It stresses the need for targeted and critical investments in natural resource management for improving food security and agriculture diversification among the rural poor.

Improving Rural Livelihoods : Lessons and Key Interventions

Experience shows that wages in agriculture remain depressed even in areas experiencing widespread agricultural intensification

In this section the lessons and best practices from the analysis of the livelihood situation across the regions and communities are identified. Within this broad overall framework, two sets of specific recommendations are formulated, involving suggestions for enhancing rural livelihoods in general and for improving the livelihoods of the rural poor, in particular. Each set of recommendations is discussed below and thereafter concrete suggestions are made for operationalising a few key interventions.

5.1 Lessons and Best Practices

Several lessons can be drawn from the analysis of livelihood strategies carried out above. Attention is drawn to a few such important lessons, taking each one in turn.

First, it appears that *a Non Farm Sector (NFS) led strategy is now increasingly more effective for poverty alleviation in some areas as compared to a Natural Resource Management (NRM) led strategy.*

The distribution of natural capital (primarily land and water) is highly skewed. As such, attempts at strengthening the productivity of natural resources tend to disproportionately benefit those sections which exercise greater control over these resources. Where there is fairly equitable access to natural resources or, where people depend substantially on common

property resources, a NRM led approach, supported by other interventions, would be quite useful for the poor.

Of the four regions covered by the *Aajeevika* survey two, viz., the Canal Irrigated areas and the Semi-Arid zone were economically more vibrant than the others. However of these two regions, the Semi-Arid zone is more vibrant and has lower poverty and inequality, as is apparent from a comparison of indicators of material well-being for the two blocks in these areas (Table 17, p.70).

The relatively high incidence of poverty in the Canal irrigated areas, despite the large irrigation coverage and well developed agriculture in the area can be understood as follows. Development in the Canal Irrigated East (Taleda block in Chambal command area) has been primarily agriculture led. The diversification observed in the region has also been agriculture led, consisting primarily of agro-processing industries and supply of agro-inputs.

Even though the poor benefit mainly from wage labor generation, experience shows that *wages in agriculture remain depressed even in areas experiencing widespread agricultural intensification.* This occurs because rural wage labor can be highly mobile. During peak demand periods, there is extensive in-migration of labor from other, economically depressed

areas, which tends to keep wages low even in peak seasons. This is seen in most agriculturally developed areas. For instance, the Chambal command areas experience in-migration of labor from Bihar during rice sowing and transplanting season.

By contrast, the engines of growth in the Semi-Arid zone (Dudu block) are more diverse. The difference becomes immediately apparent from a comparison of workforce engaged in agriculture and related activities, which is as high as seventy-eight percent for the canal irrigated areas and only forty-seven percent in the semi arid zone. While agricultural intensification has also occurred in the Semi-Arid zone, a significant proportion of household incomes (over half) in the area is derived from non-farm sources.

This suggests that in some areas a NFS led strategy may be more effective in reducing poverty than one which relies more on natural resource management.

Second, *animal husbandry appears to be critical to livelihood profiles in rural Rajasthan, serving the crucial function of drought proofing* in case of monsoon failure. The significance of animal husbandry seems to be true across agro-climatic zones in Rajasthan, as borne out by the relative importance of this activity both in terms of the occupational classification of the work force, as well as the analysis of household incomes.

However *the importance of animal husbandry is tempered by the fact that the rich benefit more from this activity than the poor*. Nevertheless, this may be a viable means for poverty alleviation in the Tribal South and the

Canal Irrigated East, with the former area offering high potential for goat rearing on a small scale, and the latter having greater potential for milch cattle.

Third, an important lesson drawn from *Aajeevika* survey relates to *migration emerging as a critical livelihood strategy for the rural poor*, even though the poorest sections are not able to migrate as it involves certain investments and risks.

The *Aajeevika* survey indicates an increasing incidence of migration across the State, except in the canal irrigated areas. Also the contribution of migration to total household incomes is increasing across rural Rajasthan. While migration is undertaken by all segments of the population, the nature of migration and motivation to migrate differs across various segments of the population and across regions.

The *scheduled castes and tribes and those lower down the social order are more likely to migrate than others*, as for them migration seems to provide an escape from local social and economic oppression. In the Desert and Semi-Arid areas, migration is mostly undertaken by the scheduled caste and tribes population, in the Tribal areas it is almost universal, given the lack of alternative livelihoods within the local economy.

However, ultimately income patterns of the poorest households indicates their inability to migrate, mainly owing to the lack of initial endowments required for migration and their inability to bear associated risks.

Fourth, another important point that emerges from the livelihood analyses is

The scheduled castes and tribes and those lower down the social order are more likely to migrate than others, as for them migration seems to provide an escape from local social and economic oppression

Availability of local wage labor opportunities play a critical role in the livelihoods of the poor and therefore must be provided at all times

that *diversification can provide opportunities for the poor to augment their household incomes*. Household incomes from non-farm sources were seen to be quite important for the rural poor in the Semi-Arid North Central and Desert West regions, while it was not so in the other two areas.

However the *options for the rural poor appear to lie at the lower end of diversification opportunities*, mostly in traditional, low income, skill based occupations while more secure jobs in the formal sector (both government and private) are typically accessed by the better-off sections of the rural population.

Finally, *availability of local wage labor opportunities play a critical role in the livelihoods of the poor and therefore must be provided at all times*. In fact, wage labor was found to be the most important source of income for the poorest households, accounting for

over half of household earnings, in all areas except the Tribal South.

Wage labor is especially important for the poorest households, as they have low entitlements being either landless or possessing extremely small plots of land. Further, non-agriculture related options are also not easily accessible for them, since diversification and migration, requires at least some capital.

5.2 Recommendations for Improving Rural Livelihoods

5.2.1 Rural Livelihoods in General

This set of recommendations is focused at enhancing rural livelihoods in general in the State. The key features of the various livelihood strategies are discussed, together with an enumeration of their principal, ruling constraints.

The key interventions in each sector are described in the table below.

Enhancing Rural Livelihoods in General : Key Interventions

	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Agriculture intensification	Targeted land and water development	1. Groundwater pilots 2. Rural energy projects aimed at reducing the consumption of energy for pumping	Groundwater pilots	1. Groundwater pilots 2. Rural energy projects aimed at reducing consumption of energy in pumping 3. PIM
Animal husbandry	Promote animal husbandry through breed improvement, marketing	Promote animal husbandry through breed improvement, marketing	Interventions aimed at addressing problems of sheep rearers (high cost of transportation, no support in drought)	Promote animal husbandry through breed improvement, marketing
Diversification		1. Development around Highway – <i>dhabas</i> , machine repair 2. Agro services sector 3. Agro processing	Development around Highway – <i>dhabas</i> , machine repair	1. Development around Highway – <i>dhabas</i> , machine repair 2. Agro services sector 3. Agro processing

Understanding Key Interventions

Agriculture Intensification : Two of the four regions studied (viz., the Canal Irrigated East and the Semi-Arid North Central zones) exhibit the process of agricultural intensification in full scale, while in the remaining areas there are pockets of agriculture intensification. Given the importance of this livelihood strategy across the State, the main features of a few emerging constraints to the process of agricultural intensification are listed in the table below.

Various interventions meant to overcome the constraints operating in agriculture are described in brief below :

First, pilot projects promoting suitable and cost effective *development of groundwater* should be undertaken. Of particular importance in this context is undertaking groundwater studies and making these available for use by farmers.

Infrastructure for this already exists with the State groundwater department, which is often approached by some of the more enterprising farmers. However this needs to further become an extension department or its services should be appended to the existing extension machinery.

Also there is need for establishing a *regulatory framework which promotes sustainable extraction* of groundwater. This is clearly more difficult than the first as it requires changes in property regimes and a high level of cooperation amongst various user groups. Efforts have been made in this direction but these have not borne much fruit. One option is to initiate small-scale pilots prior to adopting wide arching legislation.

In the current situation, the time seems ripe for promoting pilot projects that are aimed at *integrated management of irrigation water*, both canal and groundwater.

There is need for establishing a regulatory framework which promotes sustainable extraction of groundwater

Constraints to Agriculture Intensification

Constraint	Main features
High consumption of energy in agriculture in pumping water	High energy consumption in pumping irrigation water is emerging as the main problem. The problem is compounded by the highly inefficient end use devices. This has turned into a vicious cycle, with power companies trying to minimize supply to agriculture sector to cut their losses and farmers in turn being forced to resort to expensive diesel to irrigate their crops.
Emerging shortage of water as water table goes down and water quality deteriorates at some places	Most parts of the State are seeing rapid development of ground water for irrigation. However it is taking place in a haphazard manner. Farmers get borewells dug without any pre testing. A number of borewells fail, increasing costs incurred by farmers. Indiscriminate digging of borewells results in interference between borewells located near each other.
Reducing water in surface irrigation projects	Most large surface irrigation projects in Rajasthan are inter- state projects, with the catchment area lying in other States. However over a period of time, water flow in the reservoirs has reduced. One reason is erection of water harvesting structures in the up stream of the rivers. Both the major river projects of Rajasthan – the Chambal and IGNP – are experiencing this problem.
Land relations	Land relations are undergoing changes. While tenancy continues to flourish, the phenomenon of reverse tenancy is also emerging in certain parts.

Water Users Associations (WUAs) have been set up all over the State and these have been given the rights to collect a water cess and use the revenue for the upkeep of canals

Conceptually these pilots will be similar to the watershed projects that are undertaken. However the focus in this case would be on sustainable management of water and its regulated use. Watershed projects have so far tended to focus on harvesting of water and recharging of groundwater without going into issues of regulating extraction of groundwater.

Second, another intervention suggested to overcome constraints in agriculture relates to *strengthening efforts at participatory irrigation management (PIM) of canal water*. Canal irrigated areas suffer from problems of inadequate funds for canal upkeep and improper regulation of irrigation water use, leading to head areas diverting maximum water and tail areas going dry or receiving inadequate water.

The Irrigation Department of the State of Rajasthan has embarked on an ambitious project of transferring management of canals to people's committees to overcome both these problems. Water Users Associations (WUAs) have been set up all over the State and these have been given the rights to collect a water cess and use the revenue for the upkeep of canals.

However the transfer of powers from the State irrigation department to WUAs is not going to be easy. In particular, two interest groups which can sabotage this process include irrigation department officials who stand to lose out on lucrative contracts, and the rich peasantry which could seek to control the WUAs and its resources using these for their own personal gains. Further, there is even the possibility of these two interest groups coming together

and subverting true decentralization as often happens in case of *Panchayati Raj* Institutions.

Therefore the process of PIM needs to be monitored by external agencies that can act as vigilantes and ensure that the initiative is implemented in true spirit.

Finally, an intervention geared to enhance agricultural development relates to the role of *rural energy projects aimed at agricultural demand side management*. Energy use in irrigated agriculture is caught in a vicious circle, for electric utilities are forced to supply electricity at subsidized rates to agriculture consumers. The utilities in turn try to minimize the supply, thereby forcing consumers to resort to the use of very costly diesel. High inefficiency of end use devices further complicates the issue.

A pilot project in this respect can seek to break this cycle for a small area, attempting to improve services, reduce high distribution losses, and improve efficiency of end use devices.

Animal Husbandry : Apart from agriculture, animal husbandry is another significant occupation and source of livelihood almost all over the State. The primary constraint with respect to this activity relates to under-developed marketing channels and links for the products.

Typically State dairies are unable to buy all the milk that is offered for sale and the problem facing producers is compounded owing to the glut in the market. This is somewhat ironical in view of the low consumption levels prevalent in the State. In this scenario, it appears there may be a case for State

purchase of milk for supply to schools via mid-day meal schemes.

Diversification : Finally, there is ample scope for diversification in non-farm sector activities all across the State, with the possible exception of the Tribal South where prospects are truly bleak. The main areas around which diversification is feasible are:

First, *development around national highways*. Rajasthan is criss-crossed by a number of important state and national highways and new highways are also being developed following a number of national schemes. As such there is good scope for development of businesses along the highways to cater to the needs of those using the highways. In this respect, two prominent sub-sectors are catering and automobile repair. In addition, there are ancillary industries to both these main sub-sectoral enterprises which would develop alongside.

Second, a promising area for diversification is *agro services*, catering to the need for a wide range of services and inputs required in the agricultural sector, ranging from electric motor repair to deep boring machines. In fact in all areas where agricultural intensification is present, there is a vibrant agro services sector and these are often the first shops to come up in smaller towns, after daily provision stores.

Finally, *agro processing*, involving processing of agricultural produce is another significant area for diversification, especially in areas that are agriculturally vibrant.

In all areas where agricultural intensification is present, there is a vibrant agro services sector

5.2.2 Livelihoods of the Rural Poor

The recommendations for enhancing livelihoods of rural poor across different regions of the State are given in the table below.

Recommendations for Enhancing Livelihoods of the Rural Poor

Strategies	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
NRM based	Promote land and water regeneration activities	–	Rainfed farming development	Land distribution if possible
Animal Husbandry	Promote goat rearing	–	–	Promote milk - animal based livestock development through easy credit
Wage labor	Government labor generation schemes	Government labor generation schemes	Government labor generation schemes	Government labor generation schemes
Diversification	–	Promote diversification through micro credit and training	Promote diversification through micro credit and training	–
Migration	Resource center for migrant workers	Resource center for migrant workers	Resource center for migrant workers	–

Understanding Key Interventions

Agriculture : In view of the universal landholding patterns, and the significant contribution of agriculture to households of the poorest sections (who are unable to migrate), there continues to be logic for sponsoring land and water regeneration programmes, especially in the Tribal South. These will serve the function of stabilizing agriculture by improving water availability and enhancing food security.

Land distribution strategies assume greater importance in the Irrigated areas. For even though availability of land in the area is limited, redistribution may make for a viable livelihood option for the poor, as in these areas, even small holdings were found to be viable.

Animal Husbandry : *Promoting goat rearing in the Tribal South* appears important as a supplementary source of income, especially for the poorest sections that are unable to migrate. This activity may be promoted by providing easy access to credit and breed improvement programs, as well as by setting up improved marketing linkages.

Promoting milch animal based livestock development in irrigated areas should be another important concern given that these areas have a significant population of the landless. For animal husbandry is a viable means of livelihood even for the landless in these areas. In particular, easy access to credit should be ensured for purchase of animals and support services like good veterinary care and insurance should be provided.

Wage Labour Generation : *Government labor generation schemes must be promoted in*

all areas as generation of wage labor is a critical component of the poverty alleviation schemes. These schemes must be continued and even guaranteed, as provision of wage labor locally is one of the first best ways of providing food security and income stability.

Diversification : There is need to *promote diversification in the Desert West and Semi-Arid North Central regions.* These areas have fairly good potential for non-farm sector development. Micro enterprises in these areas may be promoted, given appropriate training opportunities for skill formation and adequate provision of credit facilities.

Migration : *Resource centers must be provided for facilitating migrant workers across the Tribal South, Desert West, and the Semi-Arid North Central regions.* These centers should be set up in areas with a high incidence of migration and they should undertake a series of tasks aimed at increasing returns from migration and alleviating the harsh working conditions faced by migrants.

A few of their activities could include :

- Market scan for wage labor and identifying niches (both urban and rural) where rural labor may be utilized
- Training and human capacity enhancement for absorption of rural labor into these identified niches
- Providing support services at the point of employment (i.e. in the cities or rural areas where migrants get employed)
- Initiation of social security schemes for migrant workers
- Introduction of services aimed at meeting the specific needs of migrant

Animal husbandry is a viable means of livelihood even for the landless, easy access to credit should be ensured for purchase of animals and support services like good veterinary care and insurance should be provided

workers like communication, money courier etc.

- Advocacy and public awareness campaigns aimed at enhancing awareness of the general public towards specific programs run by the centers

5.3 Operationalising Key Interventions

This section identifies concrete action areas for five of the key recommendations outlined above. Of these, recommendations relating to groundwater and rural energy pilots affect the farming community in general and large farmers in particular, whereas natural resource management, animal husbandry and measures for facilitating migration target the rural poor.

Two interventions suggested, viz., natural resource management and animal husbandry are fairly common and traditional and are discussed only briefly. The novelty with respect to these lies in the identification of specific areas and target groups. The other recommendations are new and have not really been tested or implemented before. These are discussed in greater detail.

The basic framework for describing these recommendations involves the defining the underlying concepts and rationale, specifying the action agenda and identifying the institutional mechanisms required for carrying out this agenda.

5.3.1 Targeting Rural Livelihoods in General

This section focuses on recommendations for groundwater pilots and rural energy pilots that would benefit the farming community in general and large

farmers in particular. The logic for these measures derives from rural growth theories which suggest that growth in the agricultural sector will ultimately lead to better agricultural wages for the rural poor.

Groundwater Pilots

There is urgent need for the adoption of groundwater pilots in areas where groundwater has reached a critical stage (meaning that extraction is eighty-five percent or more of the recharge). Large parts of Rajasthan are suffering from serious problems of depleting water tables. Of the areas studied, the problem has acquired serious proportions in two of them, viz., the Semi-Arid North Central and Canal Irrigated East regions. However the blocks declared critical are spread across the State.

Rationale: Surface water resources in Rajasthan are limited with only few perennial rivers. As such, groundwater is the chief source of both irrigation and drinking water in the State and the last few decades have seen rapid expansion of area under irrigation by groundwater. This has led to depleting water tables with the result that more than a fourth of the total number of blocks in the State had been declared critical or over-exploited by June 2000. By now this figure would only have increased.

The intensive exploitation of groundwater has resulted in serious problems. Given the over-exploitation of this resource, open well irrigation has become extinct in many parts where it used to be the norm and the water table has reached a depth of five to six hundred feet in some parts of the State. In addition, a falling groundwater table has led

Large parts of Rajasthan are suffering from serious problems of depleting water tables

A major challenge is to put in operation a range of corrective mechanisms, broadly involving a transition from resource development to resource management

to serious problems in the quality of the groundwater extracted. In particular, *salininity and fluorosis are the two main problems*. The population in large parts of the State is suffering from fluorosis, and the Government has been forced to undertake large scale drinking water supply schemes to address the problem.

Main Constraints : Given the current situation in the State, a major challenge is to put in operation a range of corrective mechanisms, broadly involving a transition from resource development to resource management. In fact this shift *from management to development* has been talked about for quite some time now and is the subject of numerous academic articles. However, there has been little action at the ground level. The reason for this is that the issue is very complex and involves changes in the existing property regime, which are not easy to bring about.

In particular, the main constraints that have prevented any action are :

- Lack of Regulation : Despite quite a history of efforts¹⁹, there has been almost no progress on this score. In Rajasthan, a draft Groundwater Act has been in circulation for some time for discussion amongst various stake-holders, but there has been no further progress.
- Lack of Cooperation : The number of farmers in India is very large (as compared to other places in the world where such efforts have made greater headway) and there is a great deal of petty rivalry amongst farmers that prevent cooperative action.

- Government policies: Government policies have encouraged exploitation rather than sustainability. In particular, groundwater departments kept announcing a large potential, based on an overall assessment till very lately²⁰. Further, the power tariff policy encourages extraction of groundwater at very cheap rates.
- Political hostility: The major stakeholder class, the rich peasantry, perceives regulation as a threat and as an attempt to nationalize a private resource. It therefore opposes any attempts at regulation. Compounding the problem is the fact that this class is also politically powerful.

However there are also *positive developments*. For instance, the increasing criticality and scarcity of water makes some regulation imperative, with the State declaring a Water Policy that establishes primacy of urban drinking water supplies over irrigation. Further, now that the impending groundwater crisis is being experienced by all classes, farmers are also beginning to get affected by it. So there may be a new willingness by the farming community to examine various available options.

Action Agenda : This entails at least four important steps:

- Information Systems and Resource Planning : There is only a limited or non-existent information base on groundwater availability, quality, withdrawal and other variables in a format useful for resource planning.

¹⁹ The first groundwater model bill was circulated by the Central Ministry for Agriculture in 1970.

²⁰ A flaw in the optimistic assessments made by the Groundwater Department is that these are based on the assumption that seventy percent of irrigation draft becomes available for reuse and joins groundwater as recharge. However researchers have contested this assumption, saying that this is an overestimate.

The first step to managing the resource is to understand it through appropriate systems for groundwater monitoring on a regular basis, and incorporate the monitoring data in planning the use of the resource. The next step is to undertake systematic and scientific research on the occurrence, use and ways of augmenting and managing the resource.

- **Demand-Side Management :** The second step is to put in place an effective system for regulating the withdrawals to sustainable levels, where such a system may include, registering of users through a permit or license system; creating appropriate laws and regulatory mechanisms and pricing system that aligns incentives for groundwater use with the goal of sustainability; and promoting “precision” irrigation and water-saving crop production technologies and approaches.
- **Supply-Side Management:** The third aspect of managing groundwater is augmenting groundwater recharge through mass-based rainwater-harvesting and groundwater-recharge programs and activities; maximizing surface water use for recharge; and improving incentives for water conservation and artificial recharge.
- **Groundwater Management in the River Basin Context:** Groundwater resources need to be planned and managed for maximum basin-level efficiency. As such, there is need for identifying a groundwater district, similar to a watershed, where the planned interventions can be tested out.

Stakeholders: A diverse set of actors are involved in groundwater management and any groundwater initiative will need support from a diverse range of stakeholders, including:

- **Owners of Agriculture Tube Wells:** These normally comprise large land holders from the dominant peasant castes of the State namely, *Jats, Rajputs, Bishnois, Gujars, Dangji Patels*, and others.
- **Drinking Water Users’ Representatives:** As groundwater is also used as drinking water, whoever manages drinking water will also be a stakeholder. This could be a government department like the PHED or the local *panchayats* or municipal bodies. In fact the general public also becomes a stakeholder as everybody needs drinking water.
- **Technical Departments Monitoring Groundwater:** There are technical departments for monitoring groundwater levels, e.g. the Central Groundwater Board (CGWB), which is the nodal authority and also the State Groundwater Department (SGWD). By virtue of their mandate, these departments also become important stakeholders in any groundwater initiative.
- **Agriculture Development Organisations:** As groundwater is the main source of irrigation, organisations concerned with the agriculture department, such as NABARD also become stakeholders. In fact the classification of groundwater zones into critical, semi critical, and safe is a NABARD led initiative.

Groundwater resources need to be planned and managed for maximum basin-level efficiency

So far the farmers' lobby has actively scuttled all efforts at regulation and management of groundwater, sensing a threat to their interests

- Research Organisations: Research organisations, like the IWMI that have water as their mandate, can also be stakeholders. Even general rural development organisations can be involved in groundwater projects in view of its critical importance.

The *most critical of all the stakeholders are the tube well owners*. They are the primary users, yet mobilising them is the most difficult as they have to be convinced and organised first. In fact, so far the farmers' lobby has actively scuttled all efforts at regulation and management of groundwater, sensing a threat to their interests. So the immediate task for any new initiative is to undertake an educa-

tion campaign to disseminate information about the gravity of the situation and to convince this class of the necessity of such an initiative.

Education and awareness campaigns should be followed by the *formation of a farmers' organisation* representing the various communities and sections. Further, in view of the lack of accurate, reliable, and usable information on the groundwater situation, it is imperative to gather accurate information on the current situation and monitor changes.

In this context, the emerging tasks and roles for a Promoter Agency are summarised below, along with a list of potential collaborating agencies.

Emerging Tasks and Roles for the Promoter Agency (PA)

SI No.	Task	Role to be Performed by the Promoter Agency (PA)	Other Collaborating Institutions
1	Information Systems and Resource Planning	PA can set up a research wing that will undertake data collection and analysis. Education and dissemination	SGWD CGWB Research institutions like IWMI
2	Registering of users through a permit or license system	PA promotes a Farmers' Organisation (FO)	FO SGWD
3	Creating appropriate laws and regulatory mechanisms	Advocacy	In collaboration with other agencies
4	A system of pricing that aligns the incentives for groundwater use with the goal of sustainability	Advocacy	As above
5	Promoting conjunctive use	Advocacy Pilot implementation esp. in context of local canal system	FO
6	Promoting "precision" irrigation and water-saving crop production technologies and approaches	Education and dissemination	Agriculture extension Manufacturers of micro irrigation equipment
7	Mass-based rainwater-harvesting and groundwater-recharge programs and activities	Pilot demonstration	
8	Maximizing surface water use for recharge	Pilot demonstration	
9	Improving incentives for water conservation and artificial recharge	Advocacy	
10	Groundwater Management in the River Basin Context		In collaboration with other agencies

Rural Energy Projects

This set of recommendations underscores the need for undertaking rural energy projects aimed at reducing losses from distribution and improving the quantity and quality of electricity supply.

Rationale : Groundwater is the main source of irrigation in Rajasthan, accounting for seventy percent of the total area irrigated. Given that groundwater needs pumping from depth, it explains why energy requirements of such agriculture are high.

There are two alternatives before farmers, diesel and electricity. Electricity works out several times cheaper than diesel, but provision of electricity for agriculture is a major political issue across the country. In Bundi for example, in the absence of electricity connections for irrigation, farmers are forced to use diesel to run generators, which is many times costlier than electricity.

During the green revolution the government promoted the use of electricity by subsidizing both the capital and running costs, but this is no more the case. Subsidies for capital costs (erection of poles for transmission lines) have been gradually phased out, while tariff subsidies remain a bone of contention between electricity distribution utilities and farmers.

With the new phase of reform underway in the power sector, there is immense pressure on distribution utilities to increase tariffs. While distribution utilities have not been able to phase out agriculture tariff subsidies, they have responded by curtailing supplies to the sector, which has given rise to new tensions between the farmers and

electricity utilities. Further, with the slow pace of release of new connections, there are often there are long waiting lists.

The rationale underlying this recommendation must be viewed in proper perspective. There are huge distribution losses in supply of electricity (with losses exceeding fifty percent in many rural areas), due to both technical and commercial (primarily theft) reasons. An oft-cited reason for theft is the existence of long waiting lists is farmers waiting for electricity connections simply tap the supply from the mains.

Therefore a vicious cycle operates, owing to which the losses keep mounting and both quantity and quality of electricity supply to farmers also keeps reducing. In this situation the farmer is the ultimate loser, while vested interest groups among both electricity utility employees and farmers' representatives derive benefits from this state of affairs.

In this scenario there is considerable potential for rural energy projects to tackle the many aspects of this problem. In particular, the projects should strive for reduction of distribution losses by checking theft (both by farmers and utility employees); initiation of more rational policies and release of new connections; and improvements in terms of both the quality and quantity of electricity supplied.

Action agenda : The modus operandi for achieving the above objectives will involve

- Formation of consumers' committees that will take up village level management functions.

Rural energy projects should strive for reduction of distribution losses by checking theft, initiation of more rational policies and release of new connections; and improvements in terms of both the quality and quantity of electricity supplied

Land and water regeneration programmes aimed at building food security are recommended as a good strategy for mitigating poverty in the Tribal South

- Transfer of the basic operating unit of distribution utility to a new entity which will have representation of all the stake-holders.
- Detailed study and development of a system which will set up a base line and draw up proposals for technical rehabilitation of the system.
- Undertaking agricultural demand side management measures aimed at improving efficiency of end use devices.

Stakeholders : The institutional mechanism for implementing the project will require cooperation across a range of stake-holders, including

- Farmers who have electricity connection or who are potential consumers. In this respect larger farmers who are bigger consumers will be bigger stake-holders.
- The Electricity Distribution Utility: These will be primary stakeholders as they are responsible for supply of electricity.
- Employees of Distribution Utilities.
- Development Research Agencies.

This project does not require replacement of existing utilities, rather it seeks improvement in its functioning and involvement of the consumers and employees of the utility. It could be operationalised through a management takeover of the local unit of the utility by an external intervention team.

Two sets of new *organizational mechanisms* are envisaged to carry out the proposals:

First, a management change team, comprising professionals across a range of needed specialisations, including technical (power distribution), finance,

social mobilisation and organizational change, with a team leader heading the operations.

Second, a stake-holders' association, comprising all the stakeholders, that will act as a governing council for the project. It would co-ordinate various stake-holders and exercise overall supervision of the project and its role would primarily be advisory. The implementing unit would be a basic operating unit of electricity distribution, a distribution sub- division.

5.3.2 Targeting the Rural Poor

Some of the key strategies for addressing the problem of rural poverty alleviation are described below.

Natural Resource Management (NRM) Based Strategy

A NRM based strategy should especially target the rural poor. The *Aajeevika* study has identified two areas, viz., the Tribal South and the Canal Irrigated East as having some potential for NRM based interventions. The areas and the interventions that are feasible are as follows:

Tribal South : *Land and water regeneration programmes* aimed at building food security are recommended as a good strategy for mitigating poverty in this area. Land holding is almost universal in the region and even though there is extensive migration, a very poor section of the population remains primarily dependent upon land for their livelihoods.

In these areas agriculture would always need to be supplemented with other sources of income as land holding sizes are very small. Nevertheless, increasing

productivity of land would enhance food security and make it possible for poor households to take up other livelihood options. In this context, the chief intervention required in the Tribal South is targeted land and water regeneration, rather than generalised watershed development. These would include soil and water conservation measures, water harvesting and micro irrigation and introduction of suitable crop technology for enhancing productivity.

Usually a major concern with large land based programs is that typically, maximum benefits are cornered by relatively better off sections which own more land. However, this is less of an issue in the Tribal areas where there is little social stratification and land holdings are fairly even.

Canal Irrigated East : *Redistribution of land* to the landless may hold the key to poverty alleviation in this area. Distribution of surplus revenue land to the landless has been a long-standing policy objective of the government, even though the past decade has seen little such distribution in practice. One ground on which this policy has been critiqued is that it creates a class of small land holdings which are not viable. However this argument may not apply to the Canal Irrigated Areas where even small holdings are viable, given the availability of cheap irrigation water.

The main issue that arises in this context is *whether or not surplus land is available for distribution*, as it appears that all cultivable surplus revenue lands have already been distributed. However there remains another class of common

lands, which may be used for distribution to the landless, viz., the pasture lands, classified as *charnoi* in revenue records. These lands are owned by the village *panchayat* and it is possible to access these for redistribution wherever they are available. In fact this has been done in Madhya Pradesh where the State government undertook a large scale land distribution program recently. In fact there is a government regulation that allows for conversion of all pasture lands into cultivated land, once an area comes under the command area of a canal irrigation scheme.

Yet another source of land can be created with *the government acquiring good farmland for the purpose of redistribution* to the rural poor. In almost all rural areas the richest sections among the farmers are normally the first to get access to organized sector jobs. These farmers then give out their land on lease to others. This category of farmers has been increasing over the recent past. As such, the government can frame a policy for acquiring such land by purchasing it at market rates and then redistributing these to the poor and landless rural families.

Distribution of land involves a whole range of policy measures. For one, it needs policy advocacy at the highest level for decisions need to be taken at the top and there should be sufficient political backing to make redistribution meaningful, as was the case in Madhya Pradesh. Besides, the distribution will have to be monitored at the village level to ensure that the beneficiaries are actually able to maintain possession in the longer run.

Distribution of surplus revenue land to the landless has been a long-standing policy objective of the government

Animal Husbandry

A second set of key interventions relates to promoting animal husbandry for rural poverty alleviation. Large scale, commercial animal husbandry is generally beyond the scope of the rural poor since this activity is land based, so that only the larger land owners are able to rear large stocks of animals.

The *Aajeevika* survey has identified niches in two of the areas studied (viz. the Tribal South and the Canal Irrigated areas) where animal husbandry could be a means for alleviating rural poverty :

- Milch animal based livestock development in Irrigated Areas
- Developing livelihoods in goat rearing in South Rajasthan.

Extensive irrigation in the Canal areas has led to easy availability of fodder, in fact dry fodder is practically free, while green fodder is also available cheaply, which makes it possible for even landless households to rear large animals and sell milk to augment household incomes.

In contrast, in the hilly terrain of South Rajasthan where only a small part of the total land is cultivated, it is feasible for very poor households to only rear small numbers of goats, which is reflected in the wide incidence of goat ownership in the tribal areas.

An animal husbandry project seeking to increase incomes of the very poor people must have three essential components :

- Credit for financing purchase of animals.
- Technical back-up in the form of training for improved animal husbandry practices, access to insurance and adequate veterinary services.

- Marketing support for ensuring a good price for the products.

Animal husbandry projects are not new and in fact this was the major activity financed under IRDP. This study does not dwell further on operationalising this set of recommendations.

Facilitating Migration

The final set of recommendations for addressing the specific problems of livelihoods for the rural poor relates to the development of a resource center for migrant workers and wage labourers across rural Rajasthan.

The objective of the resource center would be to help render migration and wage labour into a positive opportunity by undertaking a range of activities aimed at reducing the hardships faced by migrant laborers and maximizing their earnings. For all practical purposes the center would function like a rural employment exchange, matching workers against requirements and also serve as a node for building capacities and skills. Existing employment exchanges cater to the urban middle classes and primarily white-collar jobs, while this rural exchange would cater specifically to the requirements of manual workers.

Rationale : Nearly all rural migrant workers manage to find work only in the unorganized sector, whereas entry into organized sector jobs leads to permanent migration along with the family. For a long time academicians, social activists, and development workers have realized that growth in off farm employment is almost exclusively in the unorganized sector, while employment in the organised sector has actually been

Large scale, commercial animal husbandry is generally beyond the scope of the rural poor since this activity is land based, so that only the larger land owners are able to rear large stocks of animals

shrinking. Many argue that this phenomenon can be traced to the nature of capitalist growth in the country.

In this scenario there have been a number of efforts to improve the lot of those employed in the unorganized sector, including introduction of a separate act for migrant workers; an act for construction workers; and a social security act for workers in the unorganized sector (under draft).

In this context the main difference between the proposed initiative and past efforts lies in the underlying approach. Past efforts have focused on regulation in favor of unorganized sector workers, but the progress of legislation has been tardy and the acts often remain unimplemented due to lack of political will. By contrast the proposed initiative is primarily market led, even as it recognizes the importance of legislation and the role of advocacy for making working conditions for migrant labour congenial and comfortable.

Action agenda : This must focus on the following key areas:

- **Market Scan:** There is need for creating awareness regarding the specific nature of labour requirements in destination locations (e.g. Gujarat, for South Rajasthan). For this, institutional linkages with associations of employers like industrialists, traders, shopkeepers, and farmers must be established; studies and research undertaken into the nature of labor requirements in various sectors; and the skill profile of workers must be evaluated to identify exactly where there is a shortage in supply.

- **Labor Force Mobilization:** The resource center would have to set up registration systems keeping track of labor and their requirements, with contacts being maintained at both source areas and at destination work places. This task requires establishing an initial communication phase followed by activities undertaken to win the confidence of the workers.
- **Human Capacity Enhancement:** Labor would be also have to be trained in emerging skills, with the market scan ascertaining the nature of necessary skills and with appropriate inputs from various training institutes like ITIs and *Shramik Kendras* for designing training and upgradation programs.

Stakeholders : In this case the relevant stakeholders are

- *The Migrant Workers* who are the biggest stake-holders, but do not form an organized body. However community associations in their villages of origin can provide some representation, while participation can also be secured at individual levels.
- *Private Sector Organisations*, including employers and key agents in the business and trade networks in the destination areas.
- *NGOs* active in both areas of origin and destination of the migrant workers.
- *Research Institutes*, especially those interested in the issues of labor, development, and poverty, such as the V.V. Giri National Labor Institute (NOIDA, Uttar Pradesh) and the Gandhi Labor Institute (Ahmedabad).

There have been a number of efforts to improve the lot of those employed in the unorganized sector, including introduction of a separate act for migrant workers; an act for construction workers; and a social security act for workers in the unorganized sector

Institutional anchoring would be best vested in an autonomous agency that is capable of performing innovative roles

- *Government Agencies*, especially those concerned with poverty alleviation, such as the BDO office, *Zila Parishad* and so on.

In terms of *organisational arrangement*, the resource center will need to be a dynamic, action research type entity, undertaking new studies and data collection in completely uncharted areas and at the same time implementing pilots that actually benefit the target client, viz., the migrant workers.

Three separate sets of skills would be required, keeping in mind the three key tasks envisaged above, in terms of market scan, worker mobilization, and human resource development. Further, the scope of the initiative calls for at least a certain scale of operations, mainly because activities such as market scan must

be conducted at a significantly large scale. For instance, if the focus is on Gujarat and other existing and emerging destinations, a pilot needs to be tried out at least at block level.

In the final analysis it should be noted that this initiative is a novel one and there is no existing government department directly compatible with the roles proposed for the resource center. It appears that the institutional anchoring would be best vested in an autonomous agency that is capable of performing innovative roles. This could be a local organisation, or a State level agency with competence in livelihood development like ARAVALI. Government participation would also be desirable as it would lend legitimacy and facilitate inter-state work co-ordination.

SECTION VI

Conclusion

The *Aajeevika* study was undertaken as a follow up study to the Human Development Report, Rajasthan. It was meant to analyse the current situation regarding rural livelihoods in the State and in the light of the analysis, recommend a set of strategies for livelihood promotion, especially targeting the rural poor. The main insights from the study in this regard can be summarised as follows.

The issue of livelihood generation for the rural poor must be viewed in proper perspective. The poorest sections in rural areas lack access to the most basic livelihood resources in terms of physical, human and social capitals. As such the most appropriate strategy targeting these sections should involve wage labour generation, via government employment generation schemes and via general land and water regeneration programmes that would serve the dual task of creating demand for wage labour and contributing to agricultural development in the region.

Another important strategy targeting the rural poor involves helping them gain access to productive livelihood strategies beyond the boundaries of the local village economy. In fact this should be seen as part of a broader strategy that envisages greater integration of the hitherto isolated village economy, with the wider, more dynamic growth opportunities evolving elsewhere in the

metropolis. In this context, the specific measure recommended is the establishment of resource centers whose main aim would be to facilitate migration by helping workers find viable opportunities outside the village economy.

Other important recommendations targeting the rural poor take into account region-specific endowments that are likely to impinge on the choice and sustainability of livelihoods.

For instance, animal husbandry is seen as a promising option in all areas, especially because this can serve a crucial drought proofing function in context of the specific agro-climatic conditions prevalent in the State. However, while livestock rearing based on large animals like cows and buffaloes is feasible in areas with adequate irrigation and easy access to fodder (e.g., Canal Irrigated areas); rearing small animals like sheep and goats are more suitable in areas that are relatively water scarce (e.g., Tribal South and Desert West).

Further, targeted rural land and water generation schemes are more suited for enhancing agricultural productivity and thus improving incomes and livelihoods in areas with fairly even distribution of land (e.g. Tribal areas). In areas where resource distribution is more skewed (e.g., Canal Irrigated areas), there is need for land redistribution policies for providing

An important strategy targeting the rural poor involves helping them gain access to productive livelihood strategies beyond the boundaries of the local village economy

Need for pursuing policies for sustainable agricultural development in the State is underscored

the poor with access to more viable means of livelihoods based on agriculture. Obviously garnering political will is the most important challenge for making redistribution policies a reality.

On the other hand, in areas with relatively low prospects for agricultural development in the immediate future (e.g., the Desert areas), as well as in areas in close proximity of urban centres (e.g., the Semi-Arid areas), there is need for stressing diversification of rural livelihoods, especially based on opportunities in the non-farm sector.

Finally, the need for pursuing policies for sustainable agricultural development in the State is underscored. In this context an important area of concern is the adoption of sustainable groundwater management, given that water is a critical resource in Rajasthan. The broad contours

and implementable steps regarding such a policy are outlined, where the need to spread awareness among farmers regarding the seriousness of this issue is particularly emphasised. For ultimately, farmers are an extremely important stakeholder with their entire livelihood dependent on this critical resource.

In the context of overall agricultural development in the State, the need for viable rural energy projects, with special focus on demand side management, is also emphasised.

In the ultimate analysis these measures would mainly benefit large farmers and those with access to land, but they also have tremendous potential for contributing to the livelihoods of the rural poor, by fostering agricultural development and leading to sustainable employment creation within the rural economy.

Technical Notes

On the Comparability of *Aajeevika* Survey Results and Census Figures

To examine how rural livelihoods are changing, results of the *Aajeevika* survey valid for 2002 are compared with Census figures for 1991. However there are two methodological problems in this comparison. First, the Census typically under-enumerates work participation by females. Second, the categories of occupations defined in the *Aajeevika* study in the Census.

The first of these limitations has been overcome by comparing male Work Participation Rate (WPR) figures, as these are likely to be more realistic in the census enumeration. Table 1A below compares WPRs for males and females for the study blocks.

On the second count, certain re-grouping of classifications has been carried out for realistic comparisons. For instance, migration is not a recognised category in the National Industrial Classification (NIC) followed by Census. Yet the household survey, personal interviews and case

studies conducted during the *Aajeevika* field work confirm that migration has been increasing over the decade, especially in the tribal areas of South Rajasthan. It appears that in fact the Census may not be able to accurately capture the occupational status of workers undertaking migration. For instance, in the 2001 Census, the proportion of workforce engaged in cultivation in Dhariawad is as high as seventy-seven percent, which is at variance with the *Aajeevika* household survey figures of forty-five percent (Table 2). The reason for this discrepancy can be explained as follows. With landlessness being low in tribal areas, migrant workers often come back during peak agriculture seasons like at the time of sowing, when there is a strong likelihood of their being recorded as cultivators in the Census operation. This serves to explain the inflated share of workers in cultivation in the Census as compared to the *Aajeevika* study results.

Table 1A : Comparison of Work Participation Rate Figures (Census and *Aajeevika* Survey)

Source of Estimates		Work Participation Rates			
		Dhariawad	Dudu	Pokhran	Bundi
Census 2001	Male	53.4	48.4	51.5	53.6
	Female	48.1	37.8	39.7	41.7
<i>Aajeevika</i>	Male	72.5	50.4	44.6	49.9
	Female	76.0	50.9	35.9	47.3

Source: *Aajeevika* household survey and Provisional results of 2001 Census

Statistical Annexures

Table 1 : Occupational Classification of Workforce across Regions
(proportion of workforce)

	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Agriculture and Allied Sectors				
Cultivators	64.9	45.1	75.9	61.3
Animal Husbandry	6.3	12.8	9.2	7.5
Agriculture Labor	0.3	7.2	4.0	18.9
Non-Farm Sectors				
Quarrying	0.0	0.4	0.6	0.0
Household Industry	0.3	8.1	1.1	0.9
Construction	0.3	0.9	0.0	0.9
Trade	0.0	0.9	1.1	1.9
Govt. job	0.8	1.7	0.0	0.5
Private job	0.3	1.3	0.0	0.9
Other Activities	1.4	8.5	2.3	5.7
Migration	25.6	13.2	5.7	1.4

Note : "Other Activities" includes a variety of miscellaneous activities in the non-farm sector.

Source: *Aajeevika* Household Survey, 2002.

Table 2 : Changes in the Occupation Profile of Male Workers over the Last Decade
(proportion of workforce)

	Tribal South		Semi-Arid North Central		Desert West		Canal Irrigated East	
	2002	1991	2002	1991	2002	1991	2002	1991
Agriculture and Allied Sectors								
Cultivators	45	88	35	60	76	72	58	60
Animal Husbandry	2	1	7	7	10	4	5	3
Agriculture Labour	0	4	5	9	3	5	16	12
Non-Farm Sectors								
Quarrying	0	1	1	0	0	0	0	12
HHI	1	1	10	3	1	2	2	1
Construction	1	0	2	4	0	2	2	1
Trade	0	3	2	5	0	2	4	4
Other	4	3	17	13	3	14	11	7
Migration	48		22		8		3	

Note : "Other Activities" includes a variety of miscellaneous activities in the non-farm sector.

Source : *Aajeevika* Household Survey, 2002 and DCHs of 1991 Census for respective districts.

Table 3 : Important Sources of Household Income
(proportion of total household income)

	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Agriculture	26.5	32.4	31.7	51.7
Animal Husbandry	13.5	17.8	16.7	13.7
Wage Labour	7.7	15.1	14.6	22.6
Household Industry	2.5	6.6	6.5	0.3
Other Income	8.1	13.3	18.2	10.8
Migration	41.7	12.6	12.4	0.8

Source : *Aajeevika* Household Survey, 2002.

Table 4 : Proportion of Poor Households across Regions

	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Share of Poor Households	22	9	21	26

Note : The poor in this case refer to the poorest strata in the areas surveyed, with incomes less than Rs.10,000 p.a.

Source : *Aajeevika* household survey, 2002.

Table 5: Important Sources of Household Income for Poor Rural Households
(proportion of household income)

	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Agriculture	31.6	15.1	18.9	6.1
Animal Husbandry	26.8	7.0	0.0	18.1
Wage Labour	15.1	49.6	45.8	69.4
Household Industry	0.0	13.9	19.1	3.2
Other Income	14.1	14.4	13.4	3.2
Migration	12.4	0.0	5.3	0.0

Note : The poor in this case refer to the poorest strata in the areas surveyed, with incomes less than Rs.10,000 p.a.

Source : *Aajeevika* Household Survey, 2002.

Table 6 : Extent of Irrigation across Regions

Agro-Climatic Zones	Percentage of Cultivated Land under Irrigation
Tribal south	38
Semi arid north central	38
Desert west	7
Canal irrigated east	88

Source: *Aajeevika* household survey, 2002.

Table 7 : Incidence of Leasing and Mortgage of Land across Regions

		Lease		Mortgage	
		Taken in	Given out	Given out	Taken in
Tribal south	N	1	1	10	4
	Land (in ha)	2.6	0.2	7.0	6.6
Semi Arid North Central	N	20	14	7	0
	Land (in ha)	88.3	35.6	15.0	0.0
Desert West	N	3	1	0	0
	Land (in ha)	15.6	3.0	0.0	0.0
Canal Irrigated East	N	6	6	4	0
	Land (in ha)	51.5	57.5	9.7	0

Note: N = Number of lease and mortgage agreements recorded by the survey.

Source: *Aajeevika* household survey, 2002.

Table 8 : Share of Animal Husbandry in Household Incomes of Different Economic Classes
(proportion of total household income)

	All	Rural poor (Annual hh income <Rs. 20,000)	Absolute poor (Annual hh income < Rs. 10,000)
Tribal South	13.5	17.8	26.8
Semi-Arid North Central	17.8	7.3	7.0
Desert West	16.7	9.6	0.0
Canal Irrigated East	13.7	9.8	18.1

Source: *Aajeevika* household survey, 2002.

Table 9 : Migration across Regions

	Tribal South	Semi Arid North Central	Desert West
%age hhs migrating	64	35	16
%age income from migration	46	25	12.4
Average land holding (ha)	0.88	3.18	10.8
Average landholding of migrant hhs (ha)	0.85	3.23	7.6
Proportion of SC/ST families migrating (%)	67	43	18
Proportion of non SC/ST families migrating (%)	50	30	15
Average income of SC /ST hhs (Rs)	14432	33810	8960
Average income of non SC/ST hhs (Rs)	16873	13004	19800

Source: *Aajeevika* household survey, 2002.

Table 10 : Land Holding Size for Different Communities

	Tribal South	Semi-Arid North central	Desert West	Canal Irrigated East
SC/ST	0.9	2.2	8.9	0.2
Intermediate Castes	NA	2.7	8.0	1.4
Upper Castes	0.9	5.0	15.1	2.0

Table 11 : Distribution of Irrigated Land Among Major Communities

	Tribal South	Semi-Arid North Central
SC/ST	0.3	1.6
Intermediate Castes	NA	1.7
Other Castes	0.6	2.7

Note : Figures for the irrigated areas and desert areas are not given. In irrigated areas, almost all land is irrigated and distribution will be the same as the previous table. In desert areas, proportion of irrigated areas is very low. However allotments in IGNP areas have benefited SC communities.

Source: *Aajeevika* household survey, 2002.

Table 12 : Comparative Contribution of Different Sources to Household Incomes of Different Castes

		Agriculture	Animal Husbandry	Wage Labor	HHI	Other Sources	Migration
Dhariawad	ST/SC	27	11	8	1	8	46
	Other	26	20	8	8	8	30
Dudu	SC	8.7	7.4	10.9	11.0	6.0	56.1
	Intermediate	9.9	8.0	7.1	11.0	52.0	12.0
	Others	35.3	15.6	5.0	4.7	27.9	11.5
Pokhran	SC/ST	30.5	7.4	22.6	12.1	16.7	10.7
	Moslem	30.6	23.6	21.7	1.3	16.3	6.5
	Others	37.8	23.8	4.2	2.5	10.7	21.1
Bundi	SC	5	10	79	0	4	1
	Intermediate	62	12	18	1	6	2
	Others	59	16	10	0	15	0

Source: *Aajeevika* household survey, 2002.

Table 13: Literacy Rates across Regions

	Tribal South	Semi arid North central	Desert West	Canal irrigated East
Male	43	76	58	77
Female	17	44	23	35
Total	31	60	42	57

Source: *Aajeevika* household survey, 2002.

Table 14 : Electricity Connections in Dhariawad and Bundi

S. No	Categories	Dhariawad	Bundi
1.	Domestic Connection	5000	10447
2.	Commercial Shops	1100	1058
3.	Agriculture	600	1075
4.	Waterworks	23	18
5.	Small Industrial Connection	160	230
6.	Medium Industrial Power Connection	Nil	13
7.	High tension Connection	Nil	3

Note: Dhariawad data relates to 248 villages and Bundi data to 112 villages.

Source: RSEB offices, Dhariyawad and Bundi, 2002.

Table 15 : Road Networks in Three Blocks Surveyed

Block	Villages with road connectivity	Metalled road	Total Road connectivity	Major road networks Length
Dhariawad			343.66 kms	2 major district roads 7 through road 15 link roads
Pokhran	177	86	560 kms	Nachna – Pokhran – Falsund Pokhran – Kelawa – Devikot
Taleda			381 kms	National Highway 70 kms State Highway 40 kms District roads 5Village roads

Source: PWD offices in the blocks, 2002

Table 16 : Progress of SGSY in Two Aajeevika Study Blocks

	Dhariyawad	Taleda
Groups formed	105	112
Grade 1 (eligible for revolving fund)	51	49
Given revolving fund	19	16
Grade 2 (eligible for loan)	15	NA
Sent to bank	6	NA
Given loan last year	2	4
Progress		424 families sanctioned Rs. 115 lakhs loan

Source: Offices of PS

Table 17 : Indicators of Material Well Being across Regions

Indicators	Tribal South	Semi-Arid North Central	Desert West	Canal Irrigated East
Average household income	22621	30896	19381	23917
Proportion of Rural Poor ¹	48	23	31	48
Poverty gap	0.25	0.24	0.35	0.35

Note : ¹The rural poor in this case are all those with income below Rs.20,000 p.a.

Source: *Aajeenika* household survey, 2002.

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Livelihood is an oft-used term with many different connotations. The *Aajeevika* study considers livelihoods as a composite of entitlements and capabilities that determine the existence of a household, as it analyses how rural livelihoods are changing and diversifying in rural Rajasthan.

Based on extensive fieldwork carried out in four development blocks in the State, the study reviews the chief livelihood strategies and the main livelihood sectors in the region. In particular, it analyses livelihood options before the poorest sections of the rural community and provides a set of recommendations for promoting sustainable livelihood options across the State.

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