

Inclusive and Sustainable Development

Analytical Basis and Policy Framework



Inclusive and Sustainable Development

Analytical Basis and Policy Framework

Second Edition

Akmal Hussain

(Principal Author)

Co-Authors

Khawar Mumtaz

Khalid Mohtadullah

Bashir Ahmed Khan

Imtiaz Ali Qazilbash

Report Presented to the **UNDP Pakistan** and the
Planning Commission

June 2017

Disclaimer

The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including UNDP, or the UN Member States.

CONTENTS

List of Abbreviations	v
Acknowledgments	vii
Executive Summary	viii
CHAPTER 1	
Policy Issues in Economic Growth, Equality and Sustainable Development	1
1. Growth and Inequality: Time for a Change in Policy Approach	3
2. Pakistan's Experience of Growth with Inequality	4
3. Institutional Structure and the problem of Slow and Unstable Economic Growth	8
4. The New Challenge of Sustainable Development	10
CHAPTER 2	
A Framework for Inclusive Development: Growth through Equity	13
1. A Small and Medium Farmer Agriculture Growth Strategy	16
2. Equitable Growth through Participatory Development	17
3. An Institutional Framework for the Rapid Growth of Small and Medium Enterprises (SMEs)	18
4. A Policy Perspective on Reducing Regional Economic Disparities	19
5. Universal Provision of Health, Education and Social Security.	20
CHAPTER 3	
Inclusive and Sustainable Development through Gender Equality	23
1. Introduction	25
2. Women's Status: An Overview	26
3. Some Measures and Initiatives Taken	29
4. Challenges	30
5. Recommendations	32
CHAPTER 4	
Entrepreneurship Opportunities for the Youth, Women and Minorities through Start-Up Banks:	35
Institutional and Conceptual Features	
1. Introduction	37
2. Pakistan's Experience with Risk Capital	38
3. STEDEC	39
4. The Nexus	39
5. A New Paradigm	40
6. Venture Capital Equity Fund (VCEF)	41
7. Pakistan Mutual Savings Bank	41
8. Islamic Venture Capital	43
9. Conclusions	43

CHAPTER 5

Climate Change, Sustainable Development and Resilience 45

1. The Specific Aspects of Vulnerability to Climate Change and the Four Dimensions of Sustainable Development in Pakistan 47
2. Existing Policy Framework and Policy Gaps 49
3. Resilience 51
4. Climate Change and Regional Cooperation in South Asia 52

CHAPTER 6

A Policy Framework for Addressing Pakistan's Water Crisis 55

1. Pakistan's Water Challenges 57
2. Policy Guidelines for Addressing the Water Crisis 60

CHAPTER 7

Institutional Constraints in the Utilization of Pakistan's Hydro-Power Potential 65

1. The Necessary First Step in Resolving the Water and Power Crisis 67
2. Evolution of Hydropower Leading to Creation of the Water and Power Development Authority 68
3. Vision 2025: WAPDA's Programme for Water Resources and Hydropower Development 70
4. Siltation and Hydropower 70
5. Projected Future Demand 71
6. Impediments to Hydroelectric Development 71

CHAPTER 8

Local Government, Inclusive and Sustainable Development 75

1. Devolution, Democracy and Inclusive Development 77
2. Decentralization and Local Governments in Pakistan 79
3. Recommendations 81

Conclusions and Policy Recommendations 84

LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AWADI	Alternate Wet and Dry Irrigation
BCM	Billion Cubic Metres
BISP	Benazir Income Support Programme
BSF	Business Support Fund
CBO	Community Based Organization
CCB	Citizen Community Boards
CPEC	China-Pakistan Economic Corridor
CSR	Corporate Social Responsibility
DFI	Development Finance Institutions
FSF	Food Security Fund
FWB	First Women's Bank
GMIS	Gender Management Information System
HEIS	High Efficiency Irrigation System
HYV	High Yield Variety
IBIS	Indus Basin Irrigation System
ICOR	Incremental Capital Output Ratio
IPCC	Inter-Governmental Panel for Climate Change
IPMG	Inter-Provincial Ministers Group
IPO	Initial Public Offering
ITOT	Income Terms of Trade
IWT	Indus Water Treaty
LFS	Labour Force Survey
LG	Local Government
MAF	Million Acre Feet
MCR	Minimum Capital Requirements
MICS	Multiple Indicator Cluster Survey
MMT	Million Metric Tons
MPI	Multidimensional Poverty Index
MW	Mega Watt
NAVTTTC	National Vocational and Technical Training Commission
NCCP	National Climate Change Policy

LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
NCSW	National Commission for the Status of Women
NDMA	National Disaster Management Authority
NIE	New Institutional Economics
NRSP	National Rural Support Programme
NSS	National Skills Strategy
PBS	Pakistan Bureau of Statistics
PDHS	Pakistan Demographic and Health Survey
PID	Provincial Irrigation Departments
PIDC	Pakistan Industrial Development Corporation
PIM	Participatory Irrigation Management
PMSB	Pakistan Mutual Savings Bank
PPAF	Pakistan Poverty Alleviation Fund
PPP	Purchasing Power Parity
PRSP	Punjab Rural Support Programme
PSDF	Punjab Skills Development Fund
PSLM	Pakistan Social and Living Standards Measurement Survey
PTC	Participation Term Certificate
PWEP	Punjab Women Empowerment Package
SFDC	Small Farmer Development Corporation
SME	Small and Medium Enterprises
SMEDA	Small and Medium Enterprises Development Authority
SPDC	Social Policy Development Centre
STEDEC	Science and Technology Development Corporation of Pakistan
TEVTA	Technical Education and Vocational Training Authorities
UC	Union Council
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAW	Violence Against Women
VCEF	Venture Capital Equity Fund
WAPDA	Water and Power Development Authority
WCED	World Commission on Environment and Development

ACKNOWLEDGMENTS

I am grateful for the valuable contributions of my co-authors: to Mrs. Khawar Mumtaz for contributing a draft for chapter 3; to Mr. Khalid Mohtadullah for his draft for chapter 6; to Dr. Bashir Ahmed Khan for chapter 4; and Mr. Imtiaz Ali Qazilbash for his draft on the basis of which chapter 7 was written. Thanks are also due to my Research Assistant, Mr. Nazeef Ishtiaq, for the diligence, skill and commitment with which he provided assistance in the preparation of this Report, particularly for chapter 8, which he co-authored with me. I would like to express my appreciation to Monsieur Marc Andre Franche for the trust reposed in me and to Mr. Shakeel Ahmed, Mr. Umer Malik, Ms. Naveeda Nazir and the staff at the UNDP office Islamabad for their encouragement and support. Thanks are due to Mr. Ignacio Artaza Zuriarrain for his helmsman ship in bringing the Report to its final stage. Thanks are also due to the team at the Ministry of Planning Development and Reforms who gave a detailed set of comments on an earlier draft of the Report. Each of these comments was duly addressed in the final version of the Report. Finally, I am grateful to the members of the Advisory Council on Inclusive and Sustainable Development for their guidance and advice.

Akmal Hussain

Principal Author

June 2017.

EXECUTIVE SUMMARY

Introduction

In this Report we argue that contrary to the orthodox view, inequality can be a constraint to long term economic growth in that it restricts the potential of the people from being actualized and enabling economic development. Indeed, we postulate that when the economy is opened up to provide opportunities to all of the people rather than a few to participate in the process of investment, productivity increase and innovation, then a higher long term economic growth can be achieved. Furthermore, given the emergence of the environmental crisis, if development is to be sustained, then economic growth should not only be equitable but must be conducted so as to adapt to and mitigate the deterioration in physical life support systems within which growth takes place. Pakistan Vision 2025 explicitly acknowledges the importance of achieving a new trajectory of high and equitable economic growth that addresses gender, income and regional inequalities. It also provides a broad framework incorporating a few quantitative targets for these objectives.

The present Report reinforces Vision 2025 by providing the analytical basis and a set of specific operational policy initiatives for achieving inclusive and sustainable development in Pakistan.

Vision 2025 on Inequalities. The Pakistan Vision 2025 recognizes that the country's inability to develop its human resources has led to increased inequalities. Various forms of inequality have been identified in the Vision 2025 document and it is acknowledged that future strategies for achieving sustainable economic growth must be inclusive and it is essential that these strategies reduce all types of inequality from the country:

“Pakistan is marked by socio-economic imbalances. There are

horizontal and vertical, intra and inter-provincial, as well as rural and urban inequalities.”¹ The document envisages a growth strategy which addresses all these forms of inequalities in the country.

Structure of the Report. We begin in the first chapter with a discussion based on the latest empirical research to re-examine the relationship between economic growth and inequality. Pakistan's experience of attempting growth with inequality is discussed in this context and the resultant acute stresses placed on the economy, society and state are indicated. We provide evidence on the continued prevalence of high inter-personal and inter-regional inequality in Pakistan. In the second chapter, a strategy of inclusive and sustainable development is outlined. In the third chapter, policy measures are specified to achieve gender equality and systematic participation of women in the process of economic, social and political development. In chapter four, an institutional mechanism is identified for providing entrepreneurship opportunities to youth, women and minorities. Chapter five examines the impact of climate change on Pakistan and policy measures to address this emerging threat through sustainable development and building of resilience. The challenges of Pakistan's water crisis are identified in chapter six, and a policy framework is presented for addressing these challenges. In chapter seven, the institutional constraints to the utilization of Pakistan's hydropower potential are discussed and the initiatives that need to be taken are specified. The following chapter analyzes the relationship between local government and inclusive growth, and specific suggestions are made for institutional change through which local governments can play an effective role in participatory democracy and inclusive development.

Policy Issues in Economic Growth, Equality and Sustainable Development

A Historic Shift in the Conceptual Basis of Growth Policy.

- *The Earlier View on Growth and Inequality Overturned by New Research.* The earlier view that economic inequality is a necessary concomitant to high growth has been overturned by the latest research on the subject which shows that high economic inequality is harmful not only for long term economic growth, but also for growth sustainability.
- *Inequality and the Pace of Poverty Reduction.* Recent research also suggests that the higher the initial level of inequality, the smaller the poverty reduction effect of given rates of per capita income growth. Thus, a policy of reducing inequality can accelerate the pace of poverty reduction.

Pakistan's Experience of Growth with Inequality.

- *Economic Policy, Economic Growth and Rising Inequalities during the Period 1955-1970.* During the earlier years, Pakistan's policy makers assiduously brought the thinking of the economic orthodoxy of the 1960s into the national policy design. As a result, both inter-personal and inter-regional inequalities increased rapidly which had seriously adverse social, political and economic consequences for the country.
- *Persisting Inter-personal and Inter-Regional Inequalities.* The economic structure that was shaped by elite interests and economic policies during the earlier years (1955 to 1970) persisted in the subsequent decades and so did the

tendency for increasing inequality. The latest evidence on economic inequality as well as on multidimensional poverty in Pakistan shows that both inter-personal as well as inter-regional inequalities are not only very high but have been continuously increasing in recent years.

The Glass Half Full.

- Even though considerable challenges still remain in the glass half empty, the performance in the glass half full gives ground for optimism. In recent years, policy initiatives by the government have had a positive effect in bringing the budget deficit under control, improving the State Bank reserves and reviving economic growth. The CPEC idea which has now begun to be implemented, has considerable promise for catalyzing the economy, accelerating economic growth and increasing employment. However, as suggested in the Report, careful planning and time bound policy interventions will need to be made to maximize the secondary multiplier effects on growth, employment and reducing regional disparities through the historic CPEC project.

The Four Dimensions of Inequality in Pakistan.

Four major dimensions of inequality in Pakistan can be specified as follows:

- (i) Social, political and economic discrimination against women;
- (ii) Discrimination against religious minorities;
- (iii) Asymmetric markets in rural areas with respect to the rich and the poor; and,
- (iv) Poorer access over markets, infrastructure and public services for those living in remote and backward areas.

Progress Towards Reducing Inequalities.

- The initiatives of the government to reduce gender inequalities in education, employment and various tiers of governance have already produced significant results. Much still remains to be done. In this regard, an institutional framework is required for maintaining and accelerating progress in reducing gender inequality. The Report gives detailed recommendations on how this can be achieved.
- Attempts by both federal and provincial governments to move towards inclusive growth through education in the IT sector, and encouraging start-ups by young entrepreneurs from middle class families in the field of software development, is encouraging.
- Particularly noteworthy are major initiatives by the Punjab government in developing the IT sector in Pakistan. In recent years, remarkable progress has been made in this sector through the Punjab Information Technology Board (PITB), together with the Information Technology University (ITU). This university, within a short period, has produced world class research in the field of Information Technology and various cutting edge applications in fields such as Robotics. The PITB, through initiatives such as Plan 9 and Plan X, has already produced impressive results in establishing launch pads for startups by young entrepreneurs, many of whom are from middle income and some from low income families.

These initiatives, if sustained, enlarged and replicated in other provinces, can play a significant role in achieving inclusive growth through broadening the social base of entrepreneurship. They can also contribute to diversifying Pakistan's economic structure towards the knowledge intensive services sector. The ITU in tandem with the PITB, has also made a substantial contribution to the use of Information Technology and Big Data Analysis for policymaking and implementation in a whole range of governance sectors.

Institutional Structure and the Problem of Slow and Unstable Economic Growth.

- *The Key Role of Institutions for Economic Performance.* The literature on New Institutional Economics postulates that the fundamental determinant of the performance of an economy is the nature of its institutional structure.
- *Inefficient Institutional Structure as a Hallmark of Underdevelopment.* Underdeveloped countries are characterized by an institutional structure where competition is restricted in order to systematically produce rents for the elites. Thus, there is lack of incentives for increasing efficiency; hiring is not generally based on merit; there are inadequate incentives for innovation and hence long term growth is constrained.
- *Pakistan: The Relationship between a Rent-Based Institutional Structure, Inequality and the Failure to Sustain Growth.* Pakistan has a rent based institutional structure which induces economic inefficiency and in the process of rent generation for the elites, there are persistent inequalities on one hand, and inability to sustain GDP growth on the other.
- *The Pattern of Pakistan's Economic Growth.* Pakistan's growth process follows a pattern of growth spurts followed by periods of stagnation. Each of Pakistan's high growth periods since 1960s has hit into a Balance of Payments crisis that has forced a slowdown of growth in subsequent periods.
- *Elite Failure to Increase Domestic Savings and Diversify Exports.* Underlying the low domestic savings rate is the fact that the elites who have been expected to save a substantial proportion of their increased incomes have actually failed to do so and have demonstrated a propensity for ostentatious consumption rather than savings. In the case of slow export growth, the problem lies in the failure to diversify into high value added knowledge intensive exports which not only fetch relatively higher prices, but also have a rapidly growing share of global demand.
- *The Roots of Low Domestic Savings and Slow Export Growth.* The inadequacy of both domestic savings and foreign exchange earnings is essentially rooted in the existing rent based institutional structure of the economy which lacks incentives and embodies disincentives for both a substantial increase in the domestic savings rate as well as export diversification, necessary for achieving accelerated exports and sustained GDP growth.

The New Challenge of Sustainable Development

- *The Imperative of Sustainable Development.* There is now a general consensus globally among economists as well as

policymakers, that economic growth, the trajectory of technological change, investment behaviour, social life and priorities of international cooperation have to be reshaped in such a way that the life support systems of the planet can be sustained.

- *The New Dimensions to Economics and Development Policy.* Three key propositions underlie the concept of sustainable development which could change the paradigm of conventional economics and policymaking:
 - i. Economic growth must be in harmony with protection of physical environment. Only then can future generations be enabled to fulfill their needs.

- ii. Equity should be built into the process of development.
- iii. There is an essential interdependence between individual human beings within, as well as between countries.

- *The SDGs Agenda and the Need to Integrate Sustainable and Inclusive Development into Pakistan's Development Strategy.* Pakistan is a signatory to both the UN Sustainable Development Goals agenda as well as the Paris climate agreement. Accordingly, mitigation of, and adaptation to climate change and Inclusive Development should become integral to Pakistan's development strategy.

A Framework for Inclusive Development

Small and Medium Farmer Agriculture Growth Strategy

- *Elements of a Small and Medium Farmer Growth Strategy for Growth Sustainability in Agriculture.* A strategy of growth through equity in agriculture would require an improvement in the distribution of productive assets by enabling small farmers to acquire ownership of land on one hand, whilst enabling them to use it efficiently on the other. Such a strategy would have the following elements:
 - Enabling landless tenant households in this sector to acquire land. A critical constraint to increasing yields of tenant farms is that since they lose almost half of their output to the landlord, the small farm tenant has neither the incentive nor the ability to invest in increasing yields per acre.
 - Developing an institutional mechanism to give small farmers access over quality inputs.
 - Providing small farmers access over technologies for increasing their water use efficiency in a situation of water scarcity and over technologies for producing high value added crops.
 - Giving small farmers equitable access over markets in areas where there are asymmetric power structures at the local level.
- *Social Enterprise to Enable Growth of the Small Farm Sector: The SFDC.* Develop Small Farmer Development Corporations (SFDCs) in all provinces which would provide integrated support services to the small farm sector. These services include for example, laser levelling for better on-farm water management; drip irrigation; soil testing and provision of composite fertilizers that are congruent with the nutrient requirements of the soil; provision of high quality seeds; provision of credit and equitable access over markets; linking up high value production of fruits and vegetables on small farms with supply chains and export markets, involving international safety and quality standards in production and packaging process and so on and so forth.

for micro-enterprise projects. Such an institutional structure can enable the poor to break out of the poverty nexus and initiate a process of investment, savings, productivity increase and higher incomes. Thus, a localized growth process can begin to contribute to both higher growth and greater equity at the macro level. The key challenge here is to retain the autonomy of community based organizations, achieve rapid replication and maintain low overhead costs.

Rapid Growth of Small and Medium Enterprises (SMEs) for Inclusive and Sustainable Development

- *Higher, Equitable and Sustained Growth through SMEs.* Creating an institutional framework for enabling small scale industries in the high value added sectors such as, export oriented automotive parts, electronics, moulds, dyes and software sectors, especially along the CPEC. This could lead to a higher and more equitable growth accompanied by higher export growth.
- *Institutional Mechanism for Outsourcing.* Developing an institutionalized mechanism for the large scale manufacturing sector to outsource the manufacture of various components and automobile spare parts for which many small scale units have potential in terms of basic technical skills but find it difficult to get orders and thus, resort to producing low value added items for the retail market.
- *Common Facilities Centres for Regionally Equitable Growth.* Set up Common Facilities Centres (CFCs) in specified growth nodes in small towns where clusters of small scale manufacturing units already exist. These CFCs could constitute a decentralized support system to provide access to a comprehensive package of services.
- *Development of the Software Sector for Youth Self Employment and Export of Knowledge Intensive Products and Services.* Training of software experts supported by credit and market access could induce the rapid growth of software companies which would not only enable self-employment for educated youth, but also accelerate and change the composition of Pakistan's exports towards knowledge intensive products and services.

Equitable Growth through Participatory Development.

Participatory development means organizing the poor at the village and mohalla level to create social capital. On the basis of these community organizations, individual households can get better access over skill training, credit, input and output markets

Reducing Regional Economic Disparities

- *The Need for Reducing Regional Economic Disparities through Public Policy.* The government of Pakistan has not effectively counteracted the tendency of the market mecha-

nism to cumulatively increase regional disparities and as a result, these disparities have been continuously increasing and have become a persistent political issue in Pakistan.

- *The Need to bring the Regional Dimension as a Centre-piece of the Growth Strategy.* Traditionally, economic planning and policies in Pakistan involve first, the allocation of government resources among various sectors of the economy (agriculture, industry, energy etc.); then an attempt is made to achieve consistency between sectoral growth targets and the available financial resources; whereas the spatial dimension of resource allocation is assumed out of the policy planning exercise except for ad-hoc special development programmes which are a response to contingent political imperatives but are marginal to the overall plan. Thus, there is a need to make the regional dimension central to the planning exercise.
- *Development of Infrastructure in Potential Growth Nodes for Regionally Balanced Growth.* There is a need to identify growth nodes in backward areas and to develop infrastructure in such regions.
- *Maximizing the Economic Benefits and Achieving Regionally Equitable Growth through CPEC.* China has a total trade volume of USD 4,477 billion. If CPEC is linked with the development of markets along this corridor, and thereby attracts even one percent of China's trade, a trade volume of about USD 45 billion annually could be generated by the market networks on the hinterlands of CPEC. Thus CPEC has the potential of developing many remote areas and thereby reducing regional disparities. This requires maximizing the secondary multiplier effects through careful planning to build ancillary roads for linking remote communities with the main highway. At the same time, these communities would need to be organized, provided with skill training, credit, communications and marketing facilities so that they can produce goods and services required by the vast traffic

along the main economic corridor.

Universal Provision of Health, Education and Social Security.

- *Universal Provision of Basic Services Enable Equity, Social Cohesion and Long Term Economic Growth.* The universal provision of health, education and social security can be seen in terms of three dimensions of state, society and economy: (i) These services further the objective of equity which is an integral part of Pakistan's vision and its constitution; (ii) They facilitate social cohesion which is not only essential for long term growth but also builds stability and resilience in economies and societies; and, (iii) These services also have a direct relationship with high and sustained economic growth through human capital development.
- *The Importance of Quality in Education and Healthcare Services.* Equal emphasis should be given to achieving qualitative targets along with the quantitative ones in the education and health sectors. It is important therefore, to not only have universal provision of education and health in terms of quantitative coverage of the population, but have a strategy for achieving high quality in these two fields which are vital for both human development and for economic growth.
- *The Commitment for the Universal Provision of Basic Services and the Question of Affordability.* Many of the countries that have sustained high economic growth on the basis of the universal provision of health, education and social security gave a commitment to provide these services at a time when their per capita incomes were lower than that of Pakistan today. Such a commitment would also create the social and political justification for broadening the tax base. This would help generate the resources required to finance these basic services.

Inclusive and Sustainable Development through Gender Equality

- *Reorient Skill Training and Establish Links with Potential Employers to Increase the Employability of Women After Training.* Reorientation of skill training organizations to design trainings that are aligned to (and respond to) the need of employers and industry to ensure employment for women/girls; establish horizontal links with, businesses and employers, academia and representatives of workers organizations to develop appropriate training programmes.
- *Bringing the Gender Dimension into Data Sources to Enable Gender Equality in Policy Design and Development Programmes.* Strengthen data sources for collecting gender disaggregated data for policy and programme development.
- *Institutional Mechanisms for Developing Women Based Small and Medium Enterprises.* Women's share in business is very limited (10 percent women owned businesses with only five percent offering employment). In order to induct women, provision of incentives to women to develop small and medium enterprises is recommended. Incentives can be in the shape of dedicated allocations for lending by financial credit organizations to women in livestock, garments, textiles, government prioritized growth industries, and education, health, crèches and canteens. And government incentives to businesses and corporations to invest in women led businesses; taking affirmative action in the form of quotas in government contracts for women owned businesses.

Entrepreneurship Opportunities for the Youth, Women and Minorities through Start-Up Banks: Institutional and Conceptual Features

- *A New Trajectory of Innovation led Inclusive Economic Growth and the key Role of Start-up Banks.* Start-up Banks can play a key role in unleashing the potential for enterprise and innovation amongst the hitherto largely excluded sections of society: the youth, women and minorities. Inclusion of this strata of society into knowledge intensive sectors of entrepreneurship could play a key role in promoting equitable development. Such a process could also help place Pakistan on a new trajectory of innovation based, export led and thereby, sustained economic growth. The Critical Need of Start-up Financing in Pakistan. Conventional financing of commercial banks in Pakistan, which is heavily oriented towards asset-based lending, is not ideal for risk capital required for start-up financing, especially when there

are new innovations involved. Pakistan is in critical need of financing for start-ups, especially in the technology sector, in order to keep pace with global developments.

- *New Mechanisms of Start-up Financing.* Public-Private partnerships are required to build new mechanisms of start-up financing in Pakistan and the government of Pakistan can play a key role in this regard. Existing funds can be transformed into providing venture capital but this will require a strategic rethink by the asset management companies, since the latter have constraints in terms of the floors and ceilings on portfolio mix. Consequently, several alternative options have also been proposed, namely a mutual bank, and the use of multi-phased Participation Term Certificates (PTCs), to finance a Business Support Fund (BSF).

- *Support for Value Chains.* Once the operational and administrative aspects of start-up financing have been finalized, a clear mission statement can be adopted, which focuses attention on the type of firms that are to be supported. The goal should be to maximize support for those start-ups which integrate or establish a value chain which will permit sustained economic growth in a very competitive global environment.
- *Incubation Centres at Universities.* All major universities should be encouraged to create incubation centres and then expand them into a nexus involving financial institutions so as to provide credibility to business plans.

Climate Change, Sustainable Development and Resilience

The Specific Aspects of Vulnerability to Climate Change.

- *Pakistan's High Vulnerability to Climate Change.* Pakistan's economy is more vulnerable to the adverse effects of climate change than most other countries of the world. The main reason for the high degree of vulnerability to climate change is that Pakistan's economy is critically dependent on agriculture, with over 50 percent of the population either directly or indirectly dependent upon this sector. Climate change is adversely affecting both the rate and the stability of economic growth through its negative effect on the agriculture sector.
- *The Negative Impact of Climate Change on Rural Poverty and Inequality.* Another important aspect of the increased instability of economic growth associated with climate change is its impact on rural poverty and inequality.
- *Climate Change and the Looming Danger of Food Shortages.* Rising average temperatures in Pakistan are expected to have a direct effect on yields of food grain crops. A large food deficit in Pakistan could place severe stress on the capacity to import food and there is therefore, a danger of food shortages in the years ahead. This indicates the urgent importance of three sets of policy initiatives:
 - i. Development of heat resistant varieties of food grains and an institutional environment to facilitate widespread adoption of these new seeds.
 - ii. Building up a food import emergency fund within the state bank foreign exchange reserves.
 - iii. The organizational capacity building and the development of institutions to manage a food crisis if and when it occurs. It is important in this regard to not only establish food silos in every tehsil, but to have procedures in place to release food supplies and to entitle the local population to access it during a crisis.

The Four Dimensions of Sustainable Development

Sustainable development in Pakistan would require the following four dimensions of inclusive development to be built into policy making and public action at the macro as well as the micro levels, at every tier of the government:

- i. Inter-personal equity to ensure growth sustainability

through inclusion of the middle classes and the poor in the process of investment, productivity increase and innovation.

- ii. Systematic inclusion of women, the youth and those social groups that are discriminated against in society.
- iii. Inter-regional equity for a regionally broad based growth process so that the innovation and enterprise of people in the backward districts can be brought into play to achieve full utilization of the creative potential of the people.
- iv. Protection of the environment; minimizing the adverse impact of climate related disasters on human society and physical infrastructure; and building resilience so that communities and regions impacted by climate change and associated extreme events can resist and recover from them quickly and efficiently.

Policy Gaps and Recommendations

- *Unclear Division of Responsibilities between Different Tiers of the Government.* Implementation of climate change related policies is impeded by the fact that the roles of different tiers of the government are not clearly defined. For example, it is the responsibility of the federal government to devise and implement new policies in line with international treaties, but the majority of the departments through which these policies can be implemented, are under the control of the provincial governments.
- *Institutional Mechanisms for Increasing Inter-Provincial Coordination.* There is a need to establish institutional mechanisms for inter-provincial co-ordination on a continuous basis during the process of implementation of specific environment related projects bearing cross provincial implications.
- *Building Capacities of Provincial Governments for Negotiating Technology Transfer Deals with Multinational Corporations and Foreign Governments.* Capacity building at the provincial government level is also required to be able to negotiate and establish contracts that adequately protect Pakistan's interests in the case of complex technology transfer agreements with Multinational Corporations, governments of advanced industrial countries and multi-lateral agencies.

- *Capacity Building for the Adoption of New Technologies.* There is a need for organizational capacity building and institutional mechanisms for research, development, dissemination and adoption of technologies for both adaptation and resilience.

Climate Change and Regional Cooperation

- *The Importance of Regional Cooperation to Address Climate Change Challenges.* Pakistan's ecosystem is part of the integrated ecology of South Asia and therefore a significant element of adaptation and mitigation measures is the cooperation between the states of South Asia.
- *Key Areas of Cooperation.* Forms of South Asian cooperation to manage the adverse effects of climate change include:
 - Managing internal migration.
 - Cooperation for research, development and dissemination of heat and saline resistant varieties of food grain.
 - Establishment of a South Asian Food Security Fund (FSF).
 - Storage and transportation of buffer stocks of food.
 - Cooperation between upper and lower riparian states to reduce the potential for inter-state tensions and improve adaptation to climate change.
- *The Indus Basin Treaty and Cooperation to Face Climate Change.* The Indus Basin Treaty between India and Pakistan

has stood the test of time so far in water sharing over the last five decades. Now in the face of climate change, the activation of some of the unused provisions of the treaty as well as additional protocols need to be established for adaptation to climate change in a peaceful and mutually beneficial manner:

- An institutional and organizational strengthening of the Indus Waters Commission is required to address the challenges of the sustainable and peaceful use of Indus waters.
- Strengthening the dispute resolution capabilities of the Indus Water Commission by adding more Assistant Commissioners and professional staff with the requisite expertise.
- There is a need for additional co-operation procedures because the Treaty has no provision on the response by Pakistan and India to reduced river flows associated with climate change.
- Additional protocols need to be agreed upon between India and Pakistan to prevent the deposit of industrial waste, toxic chemicals, heavy metals and other pollutants into the surface and ground water irrigation systems.
- There is a need to operationalize and strengthen Articles VI and VII of the Indus Basin Treaty. These Articles stipulate the "exchange of data" and suggest "Future Cooperation" respectively, between India and Pakistan, on water sharing issues.

A Framework for Addressing Pakistan's Water Crisis

Pakistan's Water Challenges

- *Importance of Irrigation Infrastructure for the Economy and Society of Pakistan.* The efficiency of irrigation and effective maintenance of the physical irrigation infrastructure is crucial for the agriculture sector and thus for Pakistan's economy and society.
- *Rapid Decline in Per Capita Water Availability.* Water availability per capita in Pakistan has declined to less than 1100 cubic meters per person per year now, compared to 5,000 cubic meters per person per year in 1951.
- *Maintenance and Replacement of Cost of Water Infrastructure.* At least USD 600 million annually are required for maintenance of the water infrastructure asset which has a replacement cost of about USD 60 billion.
- *Low Irrigation Efficiency and Productivity of Water.* The overall irrigation efficiency in Pakistan is only 36 percent and the productivity of water (water use efficiency) is among the lowest in the world.
- *Increased Dependence on Groundwater and its Consequences.* Pakistan is the 3rd largest groundwater consumer in the world, accounting for nine percent of the global withdrawals and 5.2 million ha area under groundwater irrigation (4.6 percent of the global groundwater-fed cropland). Due to the diminishing surface water supplies, reliance on groundwater has reached to 70 percent in many

canal water deficient areas. More than 70 percent of the private tubewells pump saline and sodic water, which is creating large scale salinity problems. Pakistan is now home to probably the worst salinity problem in the world.

- *Water as Capital.* In order to increase agricultural production and ensure sustainability of irrigated agriculture, the overall strategy should be to think of water as capital and hence develop and at the same time improve the efficiency of "water capital".
- *The Need for a Comprehensive Plan for the Rehabilitation and Management of Water Infrastructure.* The designated amounts for repair and maintenance of water infrastructure are only 5 to 10 percent of the required amount. Due to deferred maintenance and lack of rehabilitation, the delivery capacity of the canal system is now estimated to be 30 percent lower than the designed capacity. Pakistan needs to develop a comprehensive plan for the rehabilitation and management of its water infrastructure. This not only requires allocation and timely disbursement of required financial resources but also the development of an efficient institutional framework as well as organizational capacity.
- *The Imperative of Building Large Dams.* Currently, Pakistan is storing only 15 percent of its annual river flow, which is far less than required to ensure sustainability of irrigated agriculture. The importance of large dams should not be ignored as they are imperative for sustained national economic growth both from the point of view of food as well

as energy security. Development of small dams is also important but is not a substitute of building large dams which are usually equivalent to several hundred small dams in terms of their storage and electricity generation capacities.

- *Revise the Water Allocation Criteria to Improve Salinity Management.* To improve salinity management in the canal command areas where head and tail ends of the same system have varying soil and groundwater qualities, existing water allocation criteria should be revisited. These decisions have to be made at two levels i.e. system level and the watercourse level. Canal water allocations should be made considering cropping patterns, groundwater quality and soil salinity levels.
- *Bring Equity and Efficiency in Canal Water Distribution.* The current rotational irrigation (warabandi) system is based on the principle of equal water allocation for all farmers regardless of their location in the canal system, which discriminates against tail-end farmers. Consequently, head-end farmers usually have higher crop yields than farmers located at the tail-end of the canal system.
- *Improve Water Use Efficiency through the use of Water Saving Technologies.* Despite acute water shortages, irrigation

applications have no relevance to actual crop water requirements. Using water-saving technologies, such as piped water and pressurized micro-irrigation to replace flood irrigation, are the widely accepted means of promoting sustainable groundwater use. However, large-scale adoption of pressurized micro-irrigation is limited due to poor financial resources of small and medium sized farms and therefore new policies are needed to increase credit facilities and technical support to this category of farmers.

- *Adoption of High Efficiency Irrigation Systems to Reduce Wastage of Water.* Farmers should be incentivized to install High Efficiency Irrigation Systems (HEIS) such as drip and sprinkler irrigation systems; laser based precision land leveling to reduce water wastage on the farm; zero tillage, bed and furrow planting.
- *Introduce Bio-Saline Agriculture for Increasing Productivity of Marginal Lands.* A significant progress has been made in the field of bio saline agriculture which provides innovative techniques of managing marginal land and water areas. Salt-tolerant forage plants are efficient in producing biomass of high nutrient value. Introduction of bio saline agriculture in marginal areas could be a game changer for the livelihood of rural communities living in these areas.

Institutional Constraints and the Utilization of Pakistan's Hydro-Power Potential

- *Hydroelectric Potential of Pakistan.* Pakistan has abundant hydroelectric potential of about 100,000 MW. A strategic intervention for facilitating sustained economic growth is to accelerate the development of hydro power projects which would generate abundant and clean electricity and at the same time provide storage for irrigation purposes.
- *Decreasing Reservoir Capacity due to Sedimentation.* It is estimated that the Indus and its tributaries carry about 0.35 MAF (0.435 BCM) of sediment annually of which 60 percent remains in the system where it is deposited in the reservoirs, canals and irrigation fields. The on-line storages had been estimated to lose a total gross storage capacity of about 5.9 MAF till 2010. The live storage capacity of Tarbela and Mangla reservoirs was estimated to have reduced by 20 percent by the year 2000, and is likely to reduce by 33 percent by 2020 due to resulting reservoir sedimentation.
- *The Problem of Soil Erosion in Watershed Areas.* Over-sedimentation of the main reservoirs is a matter of serious

concern and measures for replacement of lost storage will have to be taken. The rate of soil erosion in the watershed areas is accelerating mainly due to overgrazing, deforestation, poor land use practices, cultivation of marginal lands enforced by the rapid population growth, and lack of alternative sources of fuel wood, as well as economic opportunities in the mountain communities.

- *Reduce Deforestation to Decrease Soil Erosion.* The rapid deforestation estimated at 7000 - 9000 ha annually be strictly checked in order to decrease soil erosion. About 88 percent of deforestation is due to tree cutting for fuel. Very serious consideration has to be given to providing alternative and cheap energy for cooking and heating etc.
- *Construction of an Upstream Dam to Reduce Siltation in Tarbela Dam.* An important policy initiative that should no longer be postponed is the urgent construction of an upstream dam (e.g. Basha Dam). This can possibly increase the life of Tarbela dam by 30 to 40 years.

Local Government, Inclusive and Sustainable Development

Devolution, Democracy and Inclusive Development

- *The Imperative of Decentralization.* As the societies and economies become more complex and the size and responsibilities of the governments increase, centralized governance becomes both inefficient as well as distant from the people, hence the importance of decentralization as a means of participatory, transparent and efficient government.
- *Local Governments, Elite Capture and Inefficiency:* Rural society in many areas of Pakistan has asymmetric power structures at the local level where large and influential landlords can form alliances with revenue officials, police officials, local administration and even armed gangs of

criminals to exercise power. This can result in the capture of local government by the elites for the purposes of rent seeking. The following are some of the key factors which contribute towards the phenomenon of elite capture in Pakistan:

- The tendency to perpetuate dynasties in Pakistani politics which also affects local governments.
- Weak organizational structure of the political parties at the grassroots levels
- Patron-Client vote blocks
- *Constitutional Requirement to Establish Local Governments.*

With the enactment of Article 140-A through the 18th Constitutional Amendment, local governments now have constitutional protection in Pakistan. The Article 140-A mandates that, “each province shall, by law, establish a local government system and devolve political, administrative and financial responsibility and authority to the elected representatives of the local government”.

- *Recognize Local Government as a Separate Tier of Government with its Specific set of Core Functions.* It is important to make new laws specifying the local governments as a separate (third) tier of government with its unique set of powers that are distinct from the federal and provincial governments. An Act could be passed in the National Assembly which recognizes local governments as a third tier of the government, with political, administrative and financial powers. Provinces should be allowed to design and implement the specific features of the institutional and organizational structure of the local governments and they must be able to assign any new functions to these governments. But the provincial governments should not have the powers to alter the basic framework of local governments or to recentralize any of the core functions assigned to these governments.
- *Improve the Resource Transfer Mechanisms to Local Governments.* The criterion for the transfer of resources from the provincial governments to the local governments ought to be similar to the one which is used for the transfer of resources from the federal government to the provinces. A formula based allocation from the provincial to the local governments could be considered to minimize discretion.
- *Improving the Selection Process and Mechanism for Elections on the Reserve Seats.* The legal provision of a minimum percentage of reserved seats for the marginalized sections of society (e.g. women, labourers and peasants) is a commendable legislation that will facilitate the building of an inclusive democracy and pluralist governance structures

at the local level. However, it is important to ensure that the selection process of candidates and the elections on these seats are not taken over by the local elites. In order to increase transparency in the whole process, direct elections could be held for the reserved seats as in the case of regular local government representatives.

- *Capacity Building of Local Governments.* Special training institutes may be established in every district (with branches in each tehsil within the district) for the elected local government officials. These institutes, comprising technical experts in various fields, could have the following functions:
 - Capacity building of local governments in terms of governance, organizational and institutional development, and management of resources at the local level.
 - Facilitate and train the local government officials in the identification of new projects, their implementation and evaluation.
 - Train local government officials to build resilience against climate change.
 - Linkages could be established between the universities in every district and the local government training institutes there, so that new research can be conducted which addresses specific problems of a particular district in the areas of governance, institutional structure, resource management, project planning and climate change.
- *Building and Facilitating the Organizations of the Poor.* To avoid elite capture of local government, it is necessary to develop community organizations of the poor at the village, union council, tehsil and district levels and establish institutionalized links with the corresponding tiers of local government. This is to enable the deprived sections of rural society to have a voice on a systematic basis, in the process

CHAPTER

1

Policy Issues in Economic Growth, Equality and Sustainable Development

CHAPTER 1

Policy Issues in Economic Growth, Equality and Sustainable Development²

1. Growth and Inequality: Time for a Change in Policy Approach

1.1. The Conventional View: Growth through Inequality.

For over a century, the preoccupation with achieving high rates of GDP growth has been inseparable from the view that economic inequality is a necessary concomitant of high growth. In a market based economy it was believed that since only the rich can save and invest, letting the rich get richer relative to the rest of the population could increase investment and thereby economic growth.³ Those who considered the principle of equality of opportunity a vital feature of democracy and indeed

justice, were concerned that if high GDP growth continued to generate inequalities, the idea of democracy itself could be undermined. Such worries were at least temporarily put to rest by the famous 1955 paper by Simon Kuznets.⁴ He reassuringly argued that during the process of economic growth, market forces would induce economic inequality to initially increase, then flatten out and finally decline. The apparent strength of this formulation lay in the belief that the decline in inequality at the advanced stage of growth would occur regardless of the differences in policies followed by countries or even differences

2. This chapter has been contributed by Akmal Hussain.

3. See for example: W.A. Lewis, Economic Development with Unlimited Supplies of Labour, The Manchester School 22(2), 1954; Nicholas Kaldor, Alternative Theories of Distribution, The Review of Economic Studies, Volume 23, Number 2, 1956, pages 83-100.

4. Simon Kuznets, Economic Growth and Income Inequality, The American Economic Review, Volume 45, Number 1, March 1955, pages 1-28.

in their institutional structure.

1.2. The Conventional View on Growth and Inequality Overturned.

The conventional view on the relationship between economic growth and inequality has now been overturned by new research. The seminal work by Thomas Piketty based on time series data of Europe and the US, from 1870 to 2010, shows that contrary to Kuznets, there is a long run tendency for inequality of both income and wealth to increase, though economic policy intervention can counteract this tendency. The major reason for this trend is his empirical finding that the rate of return on capital has consistently been substantially higher than the rate of economic growth. Consequently, the share of national income accruing to owners of capital would not only be higher but would systematically increase over time.⁵

The corpus of research that has emerged since the 1990s has also challenged the long held view that income inequality enables economic growth on the basis of the higher savings and investment of the rich. The influential work of Galor and Ziera⁶ based on an econometric analysis of cross country data, showed that the initial level of inequality has a negative effect on long term economic growth. This is because a high inequality of income and wealth, by narrowing the base of investments in human and physical capital, will adversely affect long term growth.

Berg et. al.⁷ have analyzed the sustainability of economic growth in developing countries. They have shown that poor countries are characterized by the inability to sustain growth, with relatively high growth spells followed by growth collapses. Their econometric evidence suggests that the high growth periods are strongly associated with greater equality.

The negative effect of inequality on long term growth has been given another dimension, that of socio political instability, by a

number of studies during the 1990s, such as Alisina and Rodrik,⁸ Perotti,⁹ and, Keefer and Knack.¹⁰ These econometric studies show that the negative effect on growth of inequality is accentuated as it generates increased socio-political instability. The factor underlying this phenomenon is that the increased uncertainty induced by socio-political instability, adversely affects future expectations and thereby present investment.

Joseph Stiglitz, in an influential recent book, contrary to the orthodox belief in the efficacy of markets, has argued that markets in fact often fail to produce efficient outcomes and hence there is a role for the government.¹¹ The received wisdom was that the very market forces which generate economic growth also generate inequality. Stiglitz counter poses this view with his proposition that “Widely unequal societies do not function efficiently, and their economies are neither stable nor sustainable in the long term”.¹² He has brought the important dimension of power to the analysis of market forces by suggesting that unequal political power can reinforce the tendency of markets to increase inequality.

Anthony B. Atkinson, in a major work on inequality published last year, argues that factors such as globalization, information and communication technologies, growth of financial services and scaling back of government's redistributive policies are important. However, underlying the economic forces, Atkinson, like Stiglitz, suggests that changes in the balance of power have played a key role in increasing economic inequality. Therefore countervailing power needs to be brought to bear in bringing about policies for reducing economic inequality.¹³

It is clear that recent research has overturned the two central propositions of orthodoxy: first that the market mechanism in time reduces inequality during the process of economic growth; and second that inequality has a positive effect on growth. On the contrary, the evidence shows that market forces tend to increase inequality over time and that inequality has in fact a negative effect on long run growth.

2. Pakistan's Experience of Growth with Inequality

2.1. A Policy of Growth through Inequality.

Pakistan's policy makers assiduously brought the thinking of the economic orthodoxy of that time into the national policy design during the 1960s. Achieving a high rate of GDP growth of course required increasing the savings and investment rates. But the key assumption of the growth strategy was that only the rich have the required propensity to save. So a policy of redistributing incomes in their favour should be undertaken. The Third Five

Year Plan (1965-70) document stated: “First, it is clear that the distribution of national product should be such as to favour the saving sectors.”¹⁴ This policy prescription embodied the doctrine of “functional inequality”, articulated in an earlier influential book: “There exists therefore, a functional justification for inequality of income if this raises production for all and not consumption for a few. The road to eventual equalities may inevitably lie through initial inequities”.¹⁵

5. Thomas Piketty, *Capital in the Twenty First Century*, (translated by Arthur Goldhammer), Harvard University Press, Cambridge, Massachusetts, 2014.
6. Oded Galor and Joseph Zeira, *Income Distribution and Macroeconomics*, *The Review of Economic Studies*, Volume 60, Number 1, January 1993, pages 35-52.
7. Andrew Berg, Jonathan D. Ostry and Jeromin Zettelmeyer, *What Makes Growth Sustained?*, *Journal of Development Economics*, Volume 98, Number 2, 2012, pages 149-166.
8. Alberto Alesina and Dani Rodrik, *Distributive Politics and Economic Growth*, *The Quarterly Journal of Economics*, Volume 109, Number 2, 1994, pages 465-490.
9. Roberto Perotti, *Growth, Income Distribution and Democracy: What the Data say*, *Journal of Economic Growth*, Volume 1, Number 2, 1996, pages 149-187.
10. Philip Keefer and Stephen Knack, *Polarization, Politics and Property Rights: Links between Inequality and Growth*, *Public Choice*, Volume 111, 2002, pages 127-154.
11. Joseph Stiglitz, *The Price of Inequality*, Allen Lane, 2012, page 33.
12. *Ibid.*, page 83.
13. Anthony B. Atkinson, *Inequality: What Can be Done?*, Harvard University Press, Cambridge Massachusetts, 2015, page 83.
14. Planning Commission of Pakistan, *The Third Five Year Plan (1965-70)*, Government of Pakistan Press, Karachi, 1965.
15. Mahbub-ul-Haq, *The Strategy of Economic Planning: A Case Study of Pakistan*, Oxford University Press, Karachi, 1963.

Note: To his credit, Dr. Mahbub-ul-Haq had the intellectual integrity to blow the whistle when near the end of the decade interpersonal economic inequality had become extremely high, and revealed the famous figure of 22 families controlling 66 percent of industrial assets. Dr. Haq combined intellectual integrity with dynamic scholarship when he later changed his view. In his *Seven Sins of Economic Planners*, he emphasized that what is important is not only the level of investment, but the extent to which it helps develop human resources. Mahbub-ul-Haq then went on to be one of the architects, along with Professor Amartya Sen, of the Human Development Index. Dr. Haq pioneered the UNDP Human Development Reports which had a major impact on changing worldwide, the focus of policy towards human beings rather than GDP growth alone.

2.2. Inter-personal Inequality in the 1960s.

While the policy of redistributing national income in favour of the rich succeeded, the expectation that the rich would substantially raise the domestic savings rate was not fulfilled. Consequently, there was a growing gap between domestic savings and the level of investment required to sustain the target GDP growth rate of 6.5 percent envisaged in the Third Five Year plan. This created the mould of an economy with a structural dependence on aid on one hand, and incapacity to sustain growth on the other.

During the decade 1960-70, while the average annual GDP growth at 6.9 percent was impressive, yet inter-personal inequalities became acute. By the end of the 1960s, while 22 families controlled 66 percent of industrial assets, there was a decline in per capita food grain consumption of the majority of Pakistan's population: the poorest 60 percent of Pakistan's urban population suffered a decline in its per capita food consumption from an index of 100 in 1963-64 to 96.1 in 1969-70. It was worse for the bottom 60 percent of the rural population, whose per capita food consumption index declined from 100 to 91 over the same period.¹⁶

2.3. Inter-regional Inequality in the 1960s.

Inter-regional disparity between East and West Pakistan also increased sharply during the 1960s. From 1960 to 1970, the per capita GDP growth in East Pakistan was only 1.5 percent per annum compared to 3.6 percent per annum in West Pakistan. Thus, by 1970, the per capita income of West Pakistan was 42 percent higher than that of East Pakistan.¹⁷ This disparity between the two wings of the country at the time was induced by the national policy of transferring resources from agriculture to industry to fuel the industrialization process. Since the agriculture sector constituted 60 percent of East Pakistan's gross output and only 40 percent in the case of West Pakistan, an inter-sectoral resource transfer policy from agriculture to industry actually meant a transfer of resources from East to West Pakistan.¹⁸

During the decade of the 1960s when high economic growth was based on inequality, it generated explosive political pressures: inter-personal inequality in West Pakistan fueled a popular movement against President Ayub Khan which overthrew the very political system within which the growth process had occurred. At the same time, inter-regional inequality between West and East Pakistan was a key factor in undermining the integrity of the State itself.

Not only did regional economic disparities between East and West Pakistan increase rapidly, but also between the provinces of West Pakistan. In an economy where there are large differences in the economic and social infrastructure facilities between regions, private sector investment being based on firm level profitability, tends to be concentrated in the relatively developed regions. As a consequence, the developed regions become even more attractive for new investment as they attract

the savings (through the banking sector) and young skilled labour from the backward regions. At the same time the backward regions, as they face an adverse change in the age composition and skill level of their population together with the transfer of their investible surplus, become even more unattractive for investment. Thus, this process termed cumulative circular causation by Gunnar Myrdal, would be expected to increase regional inequality in West Pakistan.

In the first study on regional inequality in West Pakistan, Naved Hamid and Akmal Hussain showed that not only did inter-provincial income inequality increase but also the inequality between the developed and backward districts within each province increased over the period 1960 to 1970.¹⁹ Interestingly, their evidence showed that the higher the rate of growth of a province, the higher the inequality within it. Cumulative divergence in the attractiveness between regions for further investment and hence increasing disparity between regional growth rates (whether provinces or districts), is based on concentration of communications facilities, banking services, trained personnel, maintenance facilities for machines and public utilities.

This study added a sectoral dimension to the dynamic underlying the increase in inter-provincial income inequality. Apart from the disparity of growth rates in the large scale manufacturing sector, regional differences in the agriculture growth rate in fact played the dominant role in the overall increase in regional inequality in the second half of the decade: since at that time, the Green Revolution powered agriculture growth, and the new HYV seeds required a seasonally flexible supply of water, the provinces with a relatively higher percentage of cropped acreage under irrigation, experienced a much higher agriculture growth, thereby accentuating inter-provincial disparities during this period.

2.4. Continuing Inter-personal and Inter-regional Inequalities.

The economic structure that was shaped by elite interests and economic policies in the period 1955 to 1970, persisted in the subsequent decades and so did the tendency for increasing inequality.²⁰ A study conducted by the Social Policy Development Centre (SPDC) showed that over the period 1988 to 2011, the share of national income of the poorest 20 percent of the population declined from 8.8 percent in 1988, to seven percent in 2011, while the income share of the richest 20 percent of the population increased from 43.5 percent to 48.7 percent.²¹

Apart from comparing the income shares of the top and bottom 20 percent of the population, another measure of inequality is the Gini Coefficient. This index measures the extent to which a particular distribution of income deviates from a perfectly equal distribution. So a Gini Coefficient of 0 represents perfect equality and 100 represents perfect inequality. The drawback of this measure is that it is sensitive more to the middle values of a distribution than to the extreme values. Nevertheless, even in terms of the Gini Coefficient, which understates differences between extreme ends of the income scale, the distribution of

16. Naved Hamid, *The Burden of Capitalist Growth, A Study of Real Wages in Pakistan*, Pakistan Economic and Social Review, Spring 1974, pages 47-70.

17. Keith Griffin, *Post-Independence Development Strategy*, in Keith Griffin and Azizur Rehman Khan (eds.), *Growth and Inequality in Pakistan*, Macmillan, Saint Martin's Press, London, 1972, page 29.

18. *Ibid.*, page 27.

19. Naved Hamid and Akmal Hussain, *Regional Inequalities and Capitalist Development*, Pakistan Economic and Social Review, Special Issue, 1976, pages 47-70.

20. Except in the brief period of Bhutto government from 1973 to 1977 when policies for improving the welfare of the underprivileged were followed together with attempts to change the distribution of productive assets.

21. Haroon Jamal, *Growth and Income Inequality Effects on Poverty: The Case of Pakistan (1988-2011)*, Social Policy and Development Centre, Research Report No.94, 2014.

income in Pakistan became more unequal over the period 1988-2011: increasing from an index of 35 in 1988 to 40.7 in 2011, a 16.3 percent increase in inequality. In rural areas, the increase in income inequality was greater, with the Gini Coefficient increasing from 30 to 37.3, a 24.4 percent increase in inequality.

In the latest study on inequality by UNDP, a provincial dimension has been brought into the picture. The figures show that inequality has increased in all provinces over the period, with the sharpest increase in the Gini Coefficient being in the Punjab, from an index of 35 in 1987-88 to 43 in 2013-14, an increase of 22.9 percent. This is followed by Balochistan where the index increases from 32 to 38 over the period, an increase of 18.8 percent; KPK from an index of 31 to 36 over the period, an increase of 16.1 percent; and Sindh from an index of 34 to 38, an increase of 11.8 percent over the period, in the degree of inequality. Estimates have also been made for rural and urban differences in provincial level inequality. The study shows that in the case of Punjab and Sindh the increase in rural inequality has been greater than urban inequality, while in Balochistan and KPK it is urban inequality that has increased more than rural inequality.²²

2.5. The Four Dimensions of Inequality.

In Pakistan, underlying persisting inequalities is the structure of power and the associated institutional framework. Four dimensions of inequality are apparent in the society, economy and state. First is the social, political and economic discrimination against women. Consequently, women have relatively lesser access than men over productive assets, employment, education and state services such as justice and physical protection from violence.

The second dimension of exclusion and thereby inequality is discrimination against social groups with religious identities different from those of the dominant sections of society. Such so called “minorities” face restricted access over employment, finance and social mobility. Sometimes they are subjected to violence in their residential neighbourhoods, public parks and places of worship.

Thirdly, markets in rural areas are asymmetric with respect to the rich and the poor. My earlier research for UNDP has shown that many rural markets are mediated by power. So that small farmers lose almost one third of their potential income to such asymmetric markets.

Finally, a key factor in regional inequalities is that people living far away from main roads and large towns have poorer access over markets, infrastructure and public services. I have argued elsewhere that regional disparities within the market system occur because regions with better infrastructure attract private investment and pull savings (through the banking system), skilled labour force and the young from backward areas. Consequently, the initial disparity has accentuated over time as the developed region becomes cumulatively more attractive relative to the backward areas.²³ In Pakistan, the process of regional disparities through the market mechanism has historically been reinforced by the concentration of public

expenditure for economic and social infrastructure in the already developed regions.

2.6. The Glass Half Full: Progress Towards Reducing Inequalities

- The initiatives of the government to reduce gender inequalities in education, employment and various tiers of governance have already produced significant results. Much still remains to be done. In this regard, an institutional framework is required for maintaining and accelerating progress in reducing gender inequality. The Report gives detailed recommendations on how this can be achieved.
- The attempt by both the federal and provincial governments to move towards inclusive growth through education in the IT sector and encouraging start-ups by young entrepreneurs from middle class families in the field of software development is encouraging.
- Particularly noteworthy are major initiatives by the Punjab government in developing the IT sector in Pakistan. In recent years, remarkable progress has been made in this sector through the Punjab Information Technology Board (PITB), together with the Information Technology University (ITU). This university, within a short period, has produced world class research in the field of Information Technology and various cutting edge applications in fields such as Robotics. The PITB, through initiatives such as Plan 9 and Plan X, has already produced impressive results in establishing launch pads for startups by young entrepreneurs, many of whom are from middle income and some from low income families. These initiatives, if sustained, enlarged and replicated in other provinces, can play a significant role in achieving inclusive growth through broadening the social base of entrepreneurship. They can also contribute to diversifying Pakistan's economic structure towards the knowledge intensive services sector. The ITU in tandem with the PITB, has also made a substantial contribution to the use of Information Technology and Big Data Analysis for policymaking and implementation in a whole range of governance sectors.
- The CPEC idea which has now begun to be implemented, has considerable promise for catalyzing the economy, accelerating economic growth and increasing employment. However, as suggested in the Report, careful planning and time bound policy interventions will need to be made to maximize the secondary multiplier effects on growth, employment and reducing regional disparities through the historic CPEC project.

2.7. Growth, Poverty and Inequality.

Recent research suggests that there is a relationship between inequality and the poverty reduction effect of per capita income growth. The idea here is that the higher the initial level of inequality, the smaller the poverty reduction effect of given rates of per capita GDP growth.²⁴ In Pakistan today, the level of poverty is high in spite of over six decades of economic growth.

22. An Overview of Inequality in Pakistan, Development Advocate Pakistan, Volume 3, Issue 2, June 2016, pages 2-9.

23. Akmal Hussain, An Alternative Planning Perspective for Regional Growth and Development in Pakistan, The Lahore Journal of Economics, Volume 1, Number 1, pages 1-12, Lahore School of Economics, Lahore, 1996.

24. Martin Ravallion, Growth, Inequality and Poverty: Looking Beyond Averages, World Development, Volume 29, Number 11, 2001, page 1808.

Deepak Nayyar, Some Reflections on Development in South Asia: Markets, Democracy and People, Chapter 26 in Akmal Hussain and Muchkund Dubey (eds.), Democracy, Sustainable Development and Peace – New Perspectives on South Asia, Oxford University Press, New Delhi, 2014, pages 571-582.

According to the latest official estimate, the incidence of poverty in terms of the cost of basic needs is 29.5 percent where the poverty line is defined as PKR 3,030 per person per month.²⁵ If the poverty line is defined in terms of USD two per person per day (about PKR 6,120 per month), then over 60 percent of the population falls below the poverty line.²⁶

If we compare the per month income of the majority of the population with that of the richest 0.1 percent of the population, the inequality is very high. On the basis of World Bank data on the share of income of the richest 10 percent of the population, our estimate of the per month income of the richest 0.1 percent of the population adjusted for tax evasion is PKR 1,050,535 compared to the per capita monthly income of less than PKR 6,120 per month earned by the bottom 60 percent of the population.²⁷ That is, the income of the richest 0.1 percent of the population is about 172 times that of the majority of the population. (Our figure is a substantial underestimate, due to the underestimation of incomes of the top 10 percent of the population in the original World Bank data).

2.8. The Incidence of Multidimensional Poverty and Regional Disparities, 2016.

The GOP/UNDP this year has conducted a study on multidimensional poverty which goes beyond the minimum calorific norm and includes health, education and living standards. The

multidimensional poverty index (MPI) includes variables such as access to health facilities, ante-natal care, sanitation, years of schooling and education quality, water, electricity, assets, land and livestock. In these terms, the incidence of multidimensional poverty in Pakistan is 38.8 percent. The study also measures the intensity of multidimensional poverty in terms of the average percentage of dimensions in which poor people are deprived. Accordingly, the intensity of multidimensional poverty in Pakistan is 50.9 percent.

There are wide inter-provincial and inter-sectoral variations in the incidence of multidimensional poverty. The MPI for Balochistan, KPK and Sindh are substantially higher than for the Punjab. The overall MPI in Punjab is 31.4 percent, with the value of this index being 43.7 percent in rural Punjab and 6.3 percent in urban Punjab. In Sindh, overall MPI is 43.1 percent with the rural-urban gap being much higher than in any other province (75.5 percent and 10.6 percent respectively). In KPK, overall MPI is 49.2 percent with the figure being 57.8 percent in rural and 10.2 percent in the urban sector of this province. In Balochistan, overall MPI is 71.2 percent, with the value of this index being 84.6 percent in rural and 37.7 percent in the urban sector. (See table 1.1 below).

The disparity in the MPI between districts of the country is even more acute than inter-provincial inequality in terms of this index. For example in Killa Abdullah district of Balochistan, the

Table 1.1. Multidimensional Poverty by Province

Province		Incidence of Multidimensional Poverty	Intensity of Multidimensional Poverty
Punjab	Overall	31.4%	48.4%
	Rural	43.7%	48.9%
	Urban	6.3%	41.8%
Sindh	Overall	43.1%	53.5%
	Rural	75.5%	54.9%
	Urban	10.6%	43.4%
KPK	Overall	49.2%	50.7%
	Rural	57.8%	51.1%
	Urban	10.2%	41.5%
Balochistan	Overall	71.2%	55.3%
	Rural	84.6%	57.0%
	Urban	37.7%	45.7%
AJK	Overall	24.9%	46.3%
	Rural	28.1%	46.3%
	Urban	3.1%	41.0%
Gilgit Baltistan	Overall	43.2%	48.3%
	Rural	49.0%	48.3%
	Urban	7.9%	45.0%
FATA		73.7%	45.8%

Source: Multidimensional Poverty in Pakistan, Ministry of Planning, Development and Reforms, Government of Pakistan, Oxford Poverty and Human Development Initiative and UNDP.

25. Annual Plan 2016-17, Ministry of Planning Development and Reforms, Government of Pakistan, 2016, page 57.

26. Pakistan Economic Survey 2013-14, Ministry of Finance, Government of Pakistan, 2014, page 232.

27. According to the World Bank data, 25.62% of Pakistan's National Income goes to top 10 percent of its population. The figure above is estimated on the basis of the assumption that the same distribution holds within the richest 10 percent of the population as in the case of the population as a whole.

incidence of poverty in terms of the MPI is 96.9 percent, compared to 4.5 percent in Karachi, 4.3 percent in Lahore and 3.1 percent in Islamabad. Marc Andre Franche has aptly observed that in Pakistan some districts have poverty levels of Sub-Saharan Africa, while others are at the level of the highly developed countries.²⁸ (See table 1.2 below).

but also violates the norms of social justice and indeed the Constitution of Pakistan. Article 38(a), of the Constitution, requires government to prevent the buildup of inequality in the distribution of productive assets and of income.²⁹

With the high and persistent level of income inequality prevailing

Table 1.2. Districts with Highest and Lowest Incidence of Poverty in Each Province

Province	District	Incidence of Multidimensional Poverty	Intensity of Multidimensional Poverty
Punjab	Muzaffargarh (Highest)	64.8%	52.1%
	Lahore (Lowest)	4.3%	38.8%
Sindh	Tharparkar (Highest)	87.0%	55.2%
	Karachi (Lowest)	4.5%	42.4%
KPK	Kohistan (Highest)	95.8%	60.6%
	Haripur (Lowest)	24.7%	44.5%
Balochistan	Killa Abdullah (Highest)	96.9%	66.2%
	Quetta (Lowest)	46.3%	46.0%

Source: Multidimensional Poverty in Pakistan, Ministry of Planning, Development and Reforms, Government of Pakistan, Oxford Poverty and Human Development Initiative and UNDP.

incidence of poverty in terms of the MPI is 96.9 percent, compared to 4.5 percent in Karachi, 4.3 percent in Lahore and 3.1 percent in Islamabad. Marc Andre Franche has aptly observed that in Pakistan some districts have poverty levels of Sub-Saharan Africa, while others are at the level of the highly developed countries.²⁸ (See table 1.2 below).

in Pakistan, as theory would predict, it is not surprising that the pace of poverty reduction is inadequate. It is clear that if poverty is to be reduced rapidly, the structure of economic growth would have to be changed so as to achieve equity in the process of economic growth. A new policy approach for such a trajectory of growth is required to sustain growth itself as recent research discussed in Section 1 shows. It is also necessary to meet the interests of national integrity, social justice and the stipulation of the Constitution.

Such grave inter-personal and inter-regional inequality not only undermines social cohesion and constrains economic growth,

3. Institutional Structure and the problem of Slow and Unstable Economic Growth

3.1 Institutions and Economic Performance.

Over the last few decades, a new corpus of literature has entered mainstream economics and development policy, pioneered by the work of Nobel Laureate Douglas C. North³⁰ and developed by a range of economists such as John Wallis, Barry Weingast, Mushtaq Khan,³¹ Daron Acemoglu and James Robinson,³² and Avner Greif.³³ This new literature known as the New Institutional Economics (NIE) postulates that the fundamental determinant of the performance of an economy is the nature of its institutional structure. Institutions are rules (both formal rules and informal norms) embodying incentives which shape the behaviour of individuals, organizations and thereby the economy as a whole.

porary period are characterized by an “Open Access Social Order” having an efficient institutional structure. Here, there is open competition which creates incentives for efficiency, hiring based on merit, innovation, productivity increase and thereby long term growth. Philippe Aghion³⁵ has empirically established that the greater the depth and range of innovations, the higher the long term economic growth of a country. By contrast, undeveloped countries are characterized by a “Limited Access Social Order”. The institutional structure here is inefficient and systematically produces rents³⁶ for a coalition of elites. Competition is restricted to be able to produce rents, so there is a lack of incentives for increasing efficiency; hiring is not generally based on merit; there are inadequate incentives for innovation and therefore long term growth is constrained.

North et. al.³⁴ suggests that developed countries in the contem-

28. Marc-Andre Franche, An Unequal Country, the daily DAWN, August 9, 2016.

29. The Constitution of the Islamic Republic of Pakistan, National Assembly of Pakistan, page 19. [http://www.na.gov.pk/uploads/documents/1333523681_951.pdf]

30. Douglas C. North, Institutions, Institutional Change and Economic Performance, Cambridge University Press, 1990.

31. Mushtaq H. Khan, Rents, Efficiency and Growth, Chapter in Mushtaq H. Khan and Jomo Kwame Sundaram (eds.), Rents, Rent-Seeking and Economic Development – Theory and Evidence in Asia, Cambridge University Press, Cambridge UK, 2000.

32. Daron Acemoglu and James A. Robinson, Why Nations Fail – The Origins of Power, Prosperity and Poverty, Profile Books Limited, London, 2012.

33. Avner Greif, Institutions and the Path to the Modern Economy – Lessons from Medieval Trade, Cambridge University Press, New York, 2006.

34. Douglas C. North, John Joseph Wallis and Barry R. Weingast, Violence and Social Order – A Conceptual Framework for Interpreting Recorded Human History, Cambridge University Press, 2009.

35. Philippe Aghion, Peter Howitt, Maxine Brant-Collett and Cecilia Garcia-Peñalosa, Endogenous Growth Theory, MIT Press, 1998.

36. Rent in the NIE is defined as the rate of return on an asset (including skills) that is greater than its best alternate use would have generated under competitive market conditions. In this sense, rent can be considered as unearned income.

3.2. Institutional Structure and the Sustainability of Economic Growth.

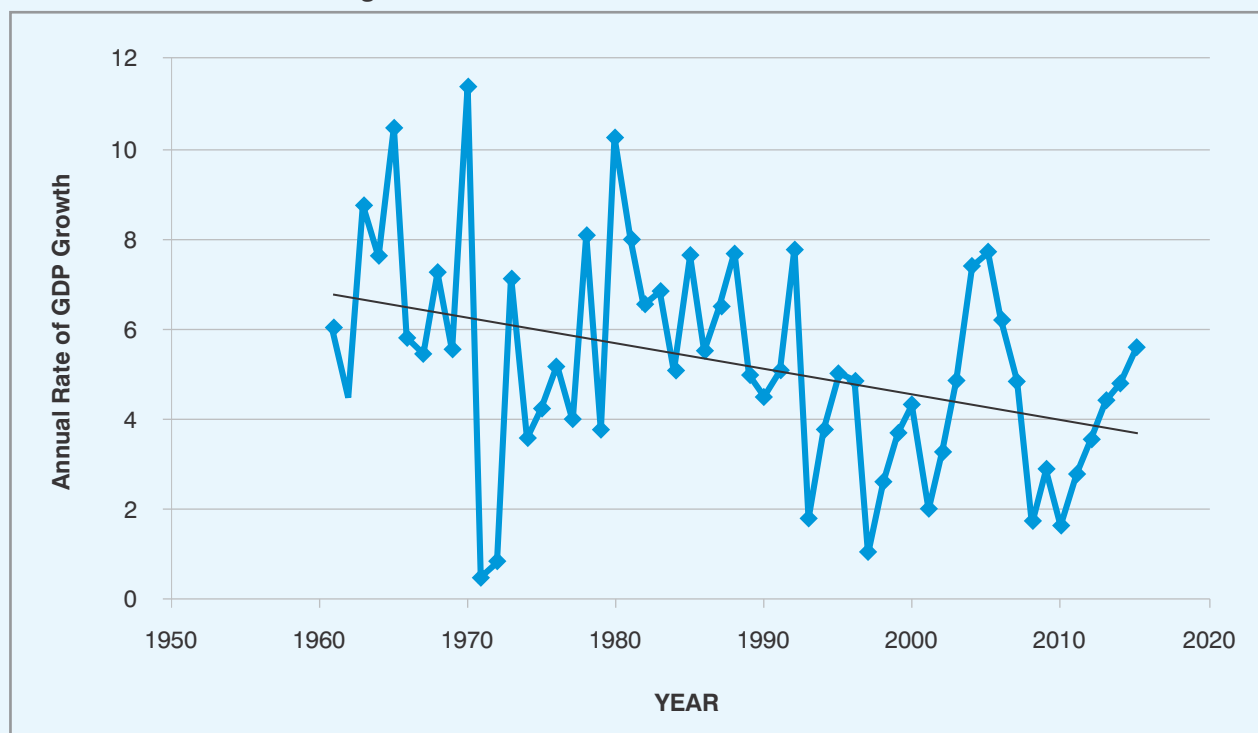
North et. al. has argued on the basis of evidence from 184 countries over the period 1950-2004, that in terms of growth performance, the distinguishing feature of developed and undeveloped countries is that developed countries are able to sustain per capita economic growth over the long run, while undeveloped countries are unable to do so. It is not that undeveloped countries do not grow; they do, but grow only in brief spurts. In fact, during these spurts, undeveloped countries typically grow at a higher rate than the long term average of the developed countries. But the high growth spurts of the undeveloped countries are followed by periods of economic stagnations and even negative per capita income growth. Consequently, such countries are unable to achieve a substantial per capita income increase over the long run. North et. al. concluded that developed economies which have achieved long term per capita income growth through transition to an Open Access Social Order have become wealthier than any other human society in history. In contrast, undeveloped countries which are locked in an inefficient institutional structure, remain mired in persistent mass poverty.

3.3. Institutional Structure and the Problem of Unsustainable Economic Growth in Pakistan

Akmal Hussain³⁷ has argued in an earlier paper that Pakistan has a rent based institutional structure which induces economic inefficiency as is the case with other underdeveloped countries with a Limited Access Social Order. In the process of rent generation for the elites, there are persistent inequalities on one hand and inability to sustain GDP growth on the other.

The paper shows that typical of countries with an inefficient institutional structure, Pakistan's growth process follows a pattern of growth spurts followed by periods of stagnation.³⁸ As a consequence, there is a declining long term trend of GDP growth (see Figure 1.1). For example, during the Ayub-Yahya period of 1960-73, the average annual GDP growth was high at 6.2 percent, which then declined to 4.9 percent in Prime Minister Z.A. Bhutto's period of 1973-78. GDP growth accelerated again in the subsequent General Zia-ul-Haq period 1978-88 to 6.6 percent annually, declined again to 4.9 percent in the period 1988-93, and 3.14 percent in the period 1993-98. The decade of slow growth (1988-98) was followed by another spurt as the average growth rate during the next period of 1998-2008 rose to

Figure 1.1. Pakistan's Annual GDP Growth Trend



Source: The above trend is estimated on the basis of World Bank's World Development Indicators data.

6.25 percent. This was followed by yet another period of stagnating per capita incomes when GDP growth declined to 2.62 percent during 2008-11. In the following five years, GDP growth increased slightly but remained below the trend rate of 5.5 percent. (See Table 1.3 below).

The factors to which Pakistan's stop-go pattern of economic growth is often attributed are a low domestic savings rate and

slow export growth. On the face of it, this indeed appears to be the case. Given an Incremental Capital Output Ratio (ICOR) of four, a domestic savings rate of 24 percent is required to generate an annual GDP growth of six percent. So an actual domestic savings rate of less than 12 percent is inadequate to sustain even a six percent growth rate of GDP. That is why high growth periods in Pakistan have been based on large inflows of foreign aid. In fact, at existing employment elasticities of GDP

37. Akmal Hussain, Institutions, Economic Growth and Participatory Development, Chapter in Rashid Amjad and Shahid Javed Burki (eds.), Pakistan: Moving the Economy Forward, The Lahore School of Economics, Lahore, 2013, pages 511-539.

38. Ibid.

Table 1.3. Gross Fixed Capital Formation as a Percentage of GDP and GDP Growth Rates 1960–2011

Period	GFCF as Percentage of GDP			Annual GDP Growth Rate (Period Average)
	Private	Public	Total	
1960–73	8.21	7.26	15.47	6.26
1973–78	4.79	10.71	15.50	4.99
1978–88	7.10	9.66	16.76	6.6
1988–93	9.22	8.73	17.95	4.92
1993–98	9.32	7.36	16.68	3.14
1998–2008	11.23	3.72	14.95	6.25*
2008–11	10.85	1.34	12.19	2.62
2011–15	10.33	3.7	14.03	3.9

Source: Pakistan Economic Survey (Various Issues)

*Refers to the period 2002-08

growth, increasing the level of employment over time requires sustaining a GDP growth of at least 7.5 percent. For such a growth target, a domestic savings rate of 30 percent is required if we are to avoid increasing reliance on loans during the growth process.

Each of Pakistan's high growth periods since 1960s has hit into a Balance of Payments crisis that has forced a slowdown of growth in subsequent period. The apparent reason again is that the export growth has remained low and consequently Pakistan's foreign exchange earnings have not been enough to finance the import requirements of a high growth trajectory.

It can be argued that low domestic savings as well as slow export growth constitute only a proximate explanation for Pakistan's inability to sustain high GDP growth. Underlying the low domestic savings rate is the fact that the elites who have been expected to save a substantial proportion of their increased incomes have actually failed to do so. It is not surprising that when large rents are forthcoming, this easy money combined with the lack of competitive pressure to save for survival, Pakistan's entrepreneurs by and large have demonstrated a propensity for ostentatious consumption rather than savings.

In the case of slow export growth, the problem lies in the failure to diversify into high value added knowledge intensive exports which not only fetch relatively higher prices, but also have a rapidly growing share of global demand. Over six decades of industrial growth, the percentage of investment going into textiles and related goods has remained at between 41 and 42

percent. In terms of output, 80 percent of Pakistan's manufactured exports consists of textiles and clothing. When we consider that the figure for textile exports as a percentage of total manufactured exports stands at 12 percent for developing countries and 6.5 percent for the world as a whole, it becomes clear that while other countries have diversified their exports, Pakistan has not.

The problem of slow growth of foreign exchange earnings is compounded by the fact that Pakistan's Income Terms of Trade (ITOT) are declining. Nazeef Ishtiaq has done research on ITOT in developing countries based on panel data of 72 countries over a 30 year period. His work shows that the shift from primary goods into simple manufactured exports is not enough to improve ITOT. Rather, an improvement in the ITOT requires a change in the composition of manufactured exports into high technology and knowledge intensive goods.³⁹

On the basis of new research, it can be argued that to substantially increase the growth of foreign exchange earnings, it is necessary to achieve both a substantial increase in export volumes as well as an improvement in the terms of trade. This requires diversifying exports towards high value added knowledge intensive goods and services. Such a historic change in Pakistan's export structure will require a whole range of institutional changes in the incentive/disincentive environment for potential exporters, banking and startup facilities for innovative investment projects, and a systematic linkup between industry and the research sector.

4. The New Challenge of Sustainable Development

4.1. Economic Growth and the Environmental Crisis.

For three centuries after the Industrial Revolution, economic growth was pursued without adequate consideration of its impact on the ecosystem within which the process of production, and indeed life itself, is sustained. Consequently, fossil fuel based technologies for industrial production induced the

buildup of greenhouse gas emissions which led to global warming. The resultant climate change unleashed an increased intensity and frequency of extreme climatic events and disrupted patterns of agriculture production that not only threatened the stability of economic growth but also brought misery to millions of people worldwide. At the same time, during the particular process of production and consumption followed hitherto,

39. Nazeef Ishtiaq, Fundamental Determinants of Developing Countries' Income Terms of Trade: A Reassessment of the Prebisch-Singer Thesis, MPhil Thesis, MSS, Forman Christian College University, Lahore, 2016.

forests and fresh water sources are being depleted, soils degraded and levels of toxicity in the hydrologic systems and the atmosphere could be approaching critical levels that could threaten life on earth. It gradually began to dawn on economists as well as policymakers that economic growth, the trajectory of technological change, investment behaviour, social life and priorities of international cooperation would have to be reshaped in such a way that the life support systems of the planet could be maintained. Thus the idea of Sustainable Development emerged.

4.2. The Concept of Sustainable Development and a Paradigm Change in Policy.

Sustainable Development was defined originally by the UN World Commission on Environment and Development (WCED) under the chairpersonship of Mrs. Gro Harlem Brundtland. Sustainable Development was defined as development within which humanity is able to "... ensure that it meets the needs of the present without compromising the ability of future generations to fulfill their needs." It can be argued that three key propositions underlay this definition and which could change the paradigm of conventional economics and policymaking:

- (i) Economic growth must be in harmony with the productive potential of the ecosystem. Only then can future generations be enabled to fulfill their needs.
- (ii) Equity in the process of development. If the present generation, in the fulfillment of its needs, is to be concerned about future generations yet unborn, then surely we should be sensitive to the needs of our fellow humans in the present generation.
- (iii) There is an essential interdependence between individual human beings within as well as between countries. This is because the way in which individuals and nations fulfill their needs affect the capacity of others to fulfill their needs, today and in the future.

The WCED Report⁴⁰ also sounded the first warning that the global ecosystem may be endangered. Later, the UN Intergovernmental Panel for Climate Change (IPCC) provided definitive evidence to establish two propositions. First, that global warming is indeed occurring, and second, that this was caused by human intervention into the ecosystem: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, [...]"⁴¹

The current consensus among scientists is that if the increase in average global temperatures goes above two degrees centigrade, the world would enter an uncharted domain with unpredictable and possibly catastrophic consequences.

4.3. The Sustainable Development Goals Agenda and the Paris Climate Change Agreement.

It is in this backdrop that the UN Sustainable Development Goals agenda was adopted in September 2015. This agenda outlined 17 SDGs and associated 169 targets to be achieved by 2030. These included, ending all forms of poverty; reduced inequality between and within countries; equitable provision of health and education; sustained and equitable growth; and, urgent action to combat climate change.

The UN SDGs summit was followed in December 2015 by the landmark Paris Conference of Parties (COP-21). In this Conference, a broad commitment from the leadership of the countries of the World was achieved to limit the increase in global temperatures to 1.5 degrees centigrade.

Pakistan is a signatory to both the UN Sustainable Development Goals agenda as well as the Paris climate agreement. Therefore mitigation of, and adaptation to climate change and Inclusive Development have become integral to Pakistan's development strategy.

40. Our Common Future, Report of the World Commission on Environment and Development, Oxford University Press, Oxford, 1987.

41. Climate Change 2013, The Physical Science Basis, Summary for Policy Makers, Working Group-I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, 2013.

REFERENCES

- Acemoglu, D. & Robinson, J. A. (2012). *Why Nations Fail – The Origins of Power, Prosperity and Poverty*. London: Profile Books Limited.
- Aghion, P., Howitt, P., Brant-Collett, M. & García-Peñalosa, C. (1998). *Endogenous Growth Theory*. Cambridge, Mass: MIT Press.
- Alesina, A. & Rodrik, D. (1994). Distributive Politics and Economic Growth. *The Quarterly Journal of Economics*, 109(2), 465-490.
- Atkinson, A. B. (2015). *Inequality: What Can be Done?*. Cambridge, Mass: Harvard University Press.
- Berg, A., Ostry, J.D. & Zettelmeyer, J. (2012). What Makes Growth Sustained?. *Journal of Development Economics*, 98 (2), 149-166.
- Franche, M. (2016). An Unequal Country, *The Daily DAWN*.
- Galor, O. & Zeira, J. (1993). Income Distribution and Macroeconomics, *The Review of Economic Studies*, 60 (1), 35-52.
- Griffin, K. (1972). Post-Independence Development Strategy. In K. Griffin & A. Khan (Eds). *Growth and Inequality in Pakistan*. London: Macmillan, Saint Martin's Press.
- Hamid, N. & Hussain, A. (1976). Regional Inequalities and Capitalist Development, *Pakistan Economic and Social Review*, Special Issue.
- Hamid, N. (1974). The Burden of Capitalist Growth, A Study of Real Wages in Pakistan, *Pakistan Economic and Social Review*, 47-70.
- Haq, M. (1963). *The Strategy of Economic Planning: A Case Study of Pakistan*. Karachi: Oxford University Press.
- Hussain, A. (1996). An Alternative Planning Perspective for Regional Growth and Development in Pakistan, *The Lahore Journal of Economics*, 1(1), 1-12.
- Hussain, A. (2013). Institutions, Economic Growth and Participatory Development. In R. Amjeb & S. J. Burki (Eds.). *Pakistan: Moving the Economy Forward Lahore*: The Lahore School of Economics.
- IPCC. (2013). *Climate Change 2013, The Physical Science Basis, Summary for Policy Makers, Working Group-I Contribution to the Fifth Assessment Report of the Inter-governmental Panel on Climate Change*. Cambridge: Cambridge University Press.
- Ishtiaq, N. (2016). *Fundamental Determinants of Developing Countries' Income Terms of Trade: A Reassessment of the Prebisch-Singer Thesis* (MPhil). Forman Christian College University, Lahore.
- Jamal, H. (2014). Growth and Income Inequality Effects on Poverty: The Case of Pakistan (1988-2011), Social Policy and Development Centre (SPDC), Research Report No. 94.
- Kaldor, Nicholas. (1956). Alternative Theories of Distribution. *The Review of Economic Studies*, 23 (2), 83-100.
- Keefer, P. & Knack, S. (2002). Polarization, Politics and Property Rights: Links between Inequality and Growth. *Public Choice*, 111, 127-154.
- Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, 45 (1), 1-28.
- Lewis, W.A. (1954). Economic Development with Unlimited Supplies of Labour. *The Manchester School* 22(2).
- Ministry of Finance. (2014). *Pakistan Economic Survey 2013-14*. Islamabad: Government of Pakistan.
- Ministry of Planning Development and Reforms. (2016). *Annual Plan 2016-17*. Islamabad: Government of Pakistan.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, D. C., Wallis, J. J., & Weingast, B. R. (2009). *Violence and Social Order – A Conceptual Framework for Interpreting Recorded Human History*. Cambridge Mass: National Bureau of Economic Research.
- Perotti, R. (1996). Growth, Income Distribution and Democracy: What the Data say. *Journal of Economic Growth*, 1 (2), 149-187.
- Piketty, T. (2014). *Capital in the Twenty First Century, (translated by Arthur Goldhammer)*. Cambridge, Mass: Harvard University Press.
- Planning Commission of Pakistan. (1965). *The Third Five Year Plan (1965-70)*. Karachi: Government of Pakistan Press.
- Stiglitz, J. (2012). *The Price of Inequality*. New York: W. W. Norton & Co.
- UNDP. (2016). An Overview of Inequality in Pakistan. *Development Advocate Pakistan*, 3(2), 2-9.
- WCED. (1987). *Our Common Future, Report of the World Commission on Environment and Development*. Oxford: Oxford University Press.

CHAPTER

2

A Framework for Inclusive Development: Growth through Equity

CHAPTER 2

A Framework for Inclusive Development: Growth through Equity¹

Introduction: The Logic and Elements of Inclusive Development

In the preceding chapter we have examined on the basis of new research, the historic shift in conceptual basis of growth policy that has occurred in recent years. In the 1950s, the mainstream view that had formed the basis of growth policy, particularly in Pakistan, postulated that (a) inequality facilitated economic growth and (b) over time market forces at an advanced stage in the growth process of a country, reduce inequality. We have shown that new research since the 1990s has overturned both these propositions. The evidence shows that inequality, since it narrows the base of investment and innovation, actually is a constraint to sustained high growth. Simultaneously, latest evidence has established that over the last hundred years,

inequality has in fact increased even in the advanced industrial countries. We also argued that the institutional structure of an economy is a fundamental factor in the performance of an economy.

In this chapter we will present a framework within which Pakistan can make a break from the past and achieve sustained economic growth through equity and inclusion. The proposed outline of a new growth strategy is based on institutional changes aimed at enabling the middle classes, the poor, women, youth, minorities and those living in backward areas, to participate in the process of saving, investment and innovation.

1. This chapter has been contributed by Akmal Hussain.

Thus, the unleashing of the productive potential of the hitherto excluded majority of the population could power a sustained high growth process based on equity.

A strategy of economic growth that reduces inter-personal and inter-regional disparities not only contributes to social cohesion and political stability but is necessary for sustaining growth itself. Furthermore, it flows out of the vision of the founding father of the state of Pakistan and is indeed a Constitutional obligation of the government. Quaid-e-Azam Muhammad Ali Jinnah considered equality to be a foundational principle of Pakistan. During his address at the public meeting in Chittagong on 26 March, 1948, Jinnah declared:

“The great ideals of human progress, of social justice, of equality and of fraternity constitute the basic causes of the birth of Pakistan...”

Jinnah's vision of equality is articulated in Articles 38(a) and 38(e) of the Constitution of Pakistan. The Constitutional requirement of preventing the concentration of wealth and productive assets is clearly stated in Article 38(a) of the Constitution:

“The state shall secure the wellbeing of the people irrespective of sex, caste, creed or race by raising their standard of living, by preventing the concentration of wealth and means of production and distribution in the hands of a few to the detriment of the general interest...”

The stipulation of reducing the disparity of incomes is specified in Article 38(e) of the Constitution:

“The state shall reduce disparity in the income and earnings of individuals, including persons in the various classes of the service of Pakistan”

In section 1, a small and middle farmer based agriculture growth strategy will be outlined. Included in this section is a programme of building a Small Farmer Development Corporation (SFDC) owned by the poor and managed by the professionals to enable provision of support services for increasing crop productivity in this sector and diversification for producing dairy and meat products, supply chains for vegetables and fruits aimed at the export market and fisheries. In section 2, we will briefly indicate a methodology of Participatory Development based on the development of community organizations for increasing the incomes of the poor through micro-enterprise projects. These community organizations would also establish the organizational basis of building resilience against natural disasters. In section 3, we will identify the institutional requirements for rapid acceleration of the small and medium manufacturing sector in the high value added automotive spare part production and electrical goods. In section 4 a framework for reducing regional disparities during the growth process will be proposed. In section 5 the importance of the universal provision of basic services for the long term socio-economic development of Pakistan is discussed and the question of affordability is also addressed. The question of gender equality is discussed in detail in chapter 3 of this Report.

1. A Small and Medium Farmer Agriculture Growth Strategy

Pakistan's agriculture growth is characterized by increasing fluctuations in output and a declining trend in crop sector growth. Since the mid-1960s, an elite farmer growth strategy has been followed. This has been a key factor in growing rural inequality as well as the declining trend in the crop sector growth rate as the yield potential of the large farms approaches a ceiling and input productivity declines. At present, about 94 percent of the total number of farms and over 60 percent of the total farm area is operated by farms below 25 acres. It is clear therefore that if agriculture growth is to be increased and sustained, then the considerable yield potential of the small and medium farm sector (less than 25 acres) would have to be utilized. It is time now to change this trajectory of agriculture growth through a new small and medium farm growth strategy.

The fundamental determinant of the distribution of income is the distribution of productive assets. Therefore, a strategy of growth through equity in agriculture would require an improvement in the distribution of productive assets by enabling small farmers to acquire ownership of land on one hand and enabling them to use it efficiently on the other. Such a strategy would have four elements: (i) Enabling landless tenant households in this sector to acquire land. A critical constraint to increasing yields of tenant farms is that since they lose almost half their output to the landlord, the small farm tenant has neither the incentive nor the ability to invest in increasing yields per acre. (ii) The small farmer typically does not have access over high quality seeds; soil testing to determine the chemical composition of fertilizers that would be congruent to the nutrient requirements of the soil; appropriate type and quality of pesticides. An appropriate

institutional mechanism is required to give small farmers access over quality inputs. (iii) The small farmers in most cases do not have access over technologies for increasing their water use efficiency in situation of water scarcity, nor do they have access over technologies for producing high value added crops. (iv) Small farmers do not have equitable access over markets which are configured in favour of the large landlords in areas where there are asymmetric power structures at the local level.

1.1. Land for the Landless.

It is proposed that 2.6 million acres of agriculture land that is state owned at the moment may be distributed to the landless tenants in five acre packages for each household. If this could be done then 58 percent of farmers below 25 acres, who are currently landless tenants, would become owner farmers. After the appropriate institutional changes in the land market, the remaining 42 percent of landless tenants may be provided credit to buy five acres each. This would involve creating credit fund for landless tenant farmers of about PKR 350 billion. Thus, an institutional basis can be created for enabling landless tenants to become owner operators and thereby acquire both the incentive and the ability to increase the yield per acre in the small farm sector.

This is not a proposal for Land Reforms, but for an institutional change that could accelerate agriculture growth and at the same time reduce inequality of rural incomes. The 2.6 million acres proposed to be distributed to the landless peasants constitute state owned land and therefore do not affect property rights of

2. This sub-section is based on an earlier work of the author: Akmal Hussain, An Institutional Framework for Inclusive Growth, Paper Contributed to the Panel of Economists for Medium Term Plan, Government of Pakistan, 2009. This paper was later published in the final report of the Panel of Economists, Planning Commission of Pakistan, in chapters 7, 8, 9, 10, 11, 12 and 13.

existing land owners in the private sector. Indeed, the reduction in inequality in the agriculture sector through a state initiative would be quite consistent with the obligation of the state to reduce inequality that is stipulated in Article 38(a) of the Constitution of Pakistan. Equity and social justice are also in line with the injunctions of Islam.

The government initiative to build a widespread network of farm to market roads is an important element in improving the distribution of rural incomes. This is because such farm to market roads, by improving access over markets for inputs, outputs and credit, could improve the bargaining power of both small owner farmers and landless tenant farmers (who are currently dependent on middle men).

1.2. Accelerating Small and Medium Farmer Growth through a Small Farmer Development Corporation (SFDC).

Farmers below 25 acres could be provided credit which could be placed initially in the names of individual farmers as equity in an SFDC registered as a public limited company with high quality professional management made responsible for operating it. The dividends earned from the SFDC could be used to return the loans to the government that had been provided to the small farmers as equity.

The SFDC could have the following functions aimed at increasing the yield per acre of small farms and their diversification into export based dairying, meat production and inland fisheries (pisciculture). In pursuit of these aims, the SFDC would provide integrated support services to the small farm sector through the following functions:

- (i) Land development, including laser leveling for better on-farm water management.
- (ii) Drip irrigation to increase water use efficiency.
- (iii) Soil testing and provision of composite fertilizers to small farmers to achieve congruence between the chemical composition of fertilizers used and the nutrient requirement of the soil.

- (iv) Provision of high quality seeds and appropriate pesticides.
- (v) Provision of credit and equitable access over markets.
- (vi) Providing focused extension services to improve farm practices and adoption of new technologies such as tunnel farming for off-season vegetables and flowers and bee keeping for honey production.
- (vii) Linking up high value production of fruits and vegetables on small farms with a supply chain, involving international standards of safety and quality in the production process, grading, packaging, storage, certification and then linkup with a database for getting export orders.
- (viii) Diversification of the farm sector such that the SFDC develops export based production of milk, milk products, meat and inland fisheries.

Pakistan is already the fifth largest producer of milk but has a yield per milch animal that is one fifth of the European average. Field experience has shown that with better feeding, the milk yields can be doubled within a short period. Pakistan is at the hub of a crescent of milk deficit countries in West Asia, Central Asia and East Asia. If an increase in the milk output could be exported to these regions, an estimated four to five billion US dollars could be generated in terms of foreign exchange. The export earnings could be much larger if poor peasants could be provided with credit and extension services to increase the number of animals as well as their milk yields. Further increases in export earnings could be achieved by producing and exporting high value added milk products through the SFDC.

Thus, a new trajectory of sustained export led growth in agriculture could be achieved on the basis of increased productivity and enterprise of small farmers.

SFDCs could be established in each province, each with multiple divisions to cater to the variety of its functions.

2. Equitable Growth through Participatory Development

Participatory Development³ involves the building of community organizations of the poor at the village level to build their human, natural and economic resource base. It specifically aims at a local process of economic growth based on the progressive development of group identity, skill development, savings, investment and productivity increase. The development of a group identity which constitutes a form of social capital through which individual households can get access over credit, skill training facilities and market access for micro-enterprise projects and generating a sustained increase in income. As individual incomes increase under the auspices of community organization, there is a progressive increase in individual and collective confidence, and local resource generation through which it becomes possible in time to develop local infrastructure projects for irrigation, single turbine power generation and

community health and education facilities.

Development NGOs in Pakistan vary in size and form, from large centralized bodies spanning a number of districts in Provinces such as the Punjab Rural Support Programme (PRSP), the National Rural Support Programme (NRSP) and the Pakistan Poverty Alleviation Fund which nurtures partner organizations for Participatory Development. A key development objective is to replicate and take to scale Participatory Development initiatives. Only then can the localized growth process in communities across the country at the aggregate level, make a significant contribution to overall GDP growth. In doing so, it would contribute to faster and more equitable growth. However, the pursuit of this objective involves addressing three challenges:

3. The concept and strategy of Participatory Development in Pakistan was formulated by Akmal Hussain in his book titled: Poverty Alleviation in Pakistan, Vanguard Books, Lahore, 1994. His contribution to the practice of Participatory Development as the first CEO of the PRSP is presented in: Akmal Hussain, Participatory Development Praxis in Pakistan's Punjab: A Case Study, in chapter 5, in Ponna Wignaraja, Susil Sirivardana, Akmal Hussain (eds.), Economic Democracy through Poor Growth, Sage Publications, New Delhi, California, and London, 2009.

The theory and practice of Participatory Development was developed earlier during the mid-1980s to the mid-1990s, by a group of South Asian scholars including Ponna Wignaraja (Sri Lanka), Akmal Hussain (Pakistan), Susil Sirivardana (Sri Lanka), Harsh Sethi (India), Shaikh Maqsood Ali (Bangladesh) and Shrikrishna Upadhyay (Nepal).

- (i) Achieving autonomy of community level organizations. The autonomous community based organizations (CBOs) at the village level through a bottom-up process should be permitted to form cluster apex organizations with other CBOs. However, before enabling the formation of cluster organizations, an improvement in the institutional structure for the formation of CBOs may be required to enable greater community participation. This is because the existing power structures in towns and villages have been manifested in the composition of CBOs. Thus, the change in the institutional framework of CBOs should be aimed at linking communities with the process of CBO formation; greater autonomy; clear demarcation of responsibility and accountability of CBOs.
- (ii) Autonomy of CBOs is not only necessary to unleash the creative potential of the poor, but is also necessary to keep overheads to the minimum so that to make them financially sustainable.
- (iii) The development of a large cadre of community workers and development experts who can play the role of external facilitators in the mobilization of communities, providing access over technical expertise for local projects, and institutionally linking up CBOs with skill training facilities and markets.

3. An Institutional Framework for the Rapid Growth of Small and Medium Enterprises (SMEs)

3.1. Accelerating the Growth of Small and Medium Sized Enterprises for Equitable Growth and Higher Export Earnings.

Small and medium industries in the manufacturing sector in most cases have shorter gestation periods, require a lower investment per unit of output increase and have higher employment elasticities compared to large scale industries. Therefore, an increased share of total investment in this sector can enable a higher GDP growth for given levels of investment, a higher employment, and at the same time, improve the distribution of income. The Small and Medium Enterprises Development Authority (SMEDA) has taken a number of important steps in facilitating and providing institutional support to SMEs. It would be extremely beneficial for the economic progress of Pakistan if special emphasis is given to the development and facilitation of SMEs in the high value added and export oriented sectors such as electronics, software, automotive parts, moulds, dyes as well as other high value added sectors. If the commendable performance of SMEDA so far could now be catalyzed and incentivized to focus on creating an institutional framework for the growth of SMEs in these sectors, higher and more equitable growth could be accompanied by higher export growth.

Training of software experts supported by credit and market access could induce the rapid growth of software companies which would not only enable self-employment for educated youth, but also accelerate and change the composition of Pakistan's exports towards knowledge intensive products and services. In this regard, the establishment of Information Technology University (ITU) in Lahore is an important initiative by the Government of Punjab. Apart from giving world class training in information technology in the fields of software and electronics, humanities and social sciences, ITU is making a significant contribution to E-Governance in Punjab. ITU has also facilitated a number of startups in the IT and software sectors. As ITU expands and the scale of this new pool of IT experts is enlarged, it can have a significant impact on moving Pakistan's economy and governance in a knowledge intensive direction.

3.2. Policy Suggestions to Accelerate the Growth of High Value Added SMEs.

In Punjab and KPK, there is substantial untapped potential for the growth of high value added small scale enterprises manufac-

turing automotive parts and components in the engineering goods sector. Yet, in many cases these units are producing low value added items like steel shutters, car exhaust pipes and water taps. This results in low profitability, low savings and slow growth. Based on an earlier research⁴ by the author, the following six initiatives could greatly help in accelerating the growth of SMEs in high value added sectors:

- (i) Building and strengthening the institutionalized mechanisms for the large scale manufacturing sector to outsource the manufacture of components and automobile spare parts. Many small scale units which have a potential in this sector in terms of basic technical skills, find it difficult to get orders and therefore resort to producing low value added items for the retail market.
- (ii) Improving the management skills to ensure quality control on the production line to meet orders on a regular basis from the large scale manufacturing sector.
- (iii) Improving the advanced skills in millwork, metal fabrication and precision welding, all of which are needed for producing high quality products with low tolerances and precise dimensional control.
- (iv) Overcoming the problems of access over input markets in large cities and lack of credit for working capital faced by small units in getting good quality raw materials which often can only be ordered in bulk.
- (v) Providing access over financial resources for capital investment in modernizing their stock of machines and difficulties in getting credit facilities from the commercial banking sector due to lack of collateral.
- (vi) Facilitating the creation of fabrication facilities, such as forging, heat treatment and surface treatment which are required for the manufacture of high value added products but are too expensive for any one small unit to set up.

3.3. Overcoming the Constraints: Common Facilities Centres (CFCs).

The Common Facility Centre idea is based on the fact that a

4. Akmal Hussain, Poverty Alleviation in Pakistan, Vanguard Books, Lahore, 1994, Annexure II.

number of small scale units have shown a great potential for skills development, innovation and entrepreneurship. To release this potential, CFCs could be set-up in specified growth nodes in small towns where clusters of small scale manufacturing units already exist. SMEDA has already initiated the process of establishing a number of CFCs in order to provide machinery to SME clusters so that they can upgrade their businesses. In this regard, CFCs for honey processing, marble processing, CNG cylinder testing and agriculture processing will be established in Swat, Chitral and Naran. However, it is essential that more CFCs are established which specifically facilitate the SMEs in high value added and skill intensive sectors with export potential such as electronics, software, automotive parts, and moulds. To further strengthen these initiatives, the work of SMEDA could be deepened by enabling the CFCs to constitute a decentralized support system for providing access to a comprehensive package of services such as:

- (i) Institutionally linking up the small scale units with the large scale manufacturing sector for outsourcing contracts.
- (ii) Provision of credit.
- (iii) Raw material banks to enable small units to buy in small lots.

- (iv) Training in technological skills and diffusion of new technologies.
- (v) Prototype development.
- (vi) Facilities for forging, heat treatment and surface treatment.
- (vii) Managerial training for setting up quality control procedures.

The CFCs would house advanced machines for forging, heat treatment, surface treatment, and computerized milling machines operated by high quality engineers and trainers. The small scale industrial units could then access this equipment on a rental basis as and when required.

The CFCs could thus play a catalytic role in accelerating the growth of small scale enterprises in the automotive parts and electronics sectors and unleashing the potential talent of the lower middle classes to produce skill intensive, high value added goods for domestic and export markets. They could also help in developing new growth nodes in smaller towns and thereby contribute to reducing regional economic disparities. The question of regional disparity is taken up in the ensuing section.

4. A Policy Perspective on Reducing Regional Economic Disparities⁵

4.1. Persisting Regional Disparities and Economic Policy.

Regional economic disparities have been a persistent political issue in Pakistan. Yet, these disparities have continued to increase (See sections 2.3. and 2.4 in chapter 1). This is because the tendency of the market mechanism to cumulatively increase regional disparities has not been effectively counteracted by government policy so far. Economic policies and planning in Pakistan has traditionally involved, at first, the allocation of government resources among various sectors of the economy (agriculture, industry, energy etc.), and then an attempt is made to achieve consistency between sectoral growth targets and the available financial resources. Space is assumed out of the policy planning exercise, except for ad-hoc special development programmes which are a response to contingent political imperatives but are marginal to the overall plan.

4.2. The Need for a Perspective on Regional Economies rather than Sectors in Public Sector Resource Allocation.

Regionally equitable development requires making the regional dimension central to the planning exercise. Each investment package, programme or project must be evaluated in terms of its impact on regional disparities, before designing fiscal and monetary incentives for growth as well as programmes for institutional support.

Pakistan's experience has shown that the development of backward regions cannot be stimulated simply by giving tax incentives to entrepreneurs for investment in backward areas. The attractiveness of infrastructure and markets in the developed regions far outweighs the attractiveness of tax incentives

for the entrepreneur. In rare cases where the entrepreneur does invest in the areas designated backward (e.g. Hub Chowki), he indulges in "border hopping", i.e. he locates the unit just across the border between the developed and backward regions. The industrial unit draws its inputs and sells its outputs in the developed region, and generates secondary multiplier effects in the developed rather than the backward region.

4.3. Growth Nodes and Infrastructure Development in Backward Areas.

If investment is to go deep into the backward regions to generate self-sustained growth, the development of infrastructure in these regions is essential. The question then arises, where in the vast backward region to set up the infrastructure and how much? A regional planning exercise would involve mapping the economic and social infrastructure, geographic location of markets by size and source of raw materials. On the basis of such a map, potential growth nodes could be specified in the backward region. These would be locations which, on the basis of some existing infrastructure, proximity to a local market, or raw material availability, qualify for supplementary infrastructural investment by the government.

The first step towards specifying such growth nodes had been taken with our study on Industrial Potential of Selected Districts.⁶ This study had proposed growth nodes in the following districts: Khairpur, Nawabshah, and Sanghar in Sindh; D.G. Khan, Muzaffargarh and Bhakkar in the Punjab region. A number of backward regions have already been declared as Special Economic Zones under the CPEC, such as Gwader, Lasbella, Khairpur, Larkana and Haripur. CPEC in general and these

5. This section is based on an earlier paper by the author: Akmal Hussain, An Alternative Planning Perspective for Regional Growth and Development in Pakistan. Paper presented at the Wilton Park Conference, Wilton House, Sussex, England, March 1993. A revised version of that paper was published in, The Lahore Journal of Economics, Volume 1, Number 1, October 1996.

6. Ayub Qutub, Agha Imran Hamid and Akmal Hussain, A Study on Industrialization Potential of Selected Districts, A Report submitted to the National Development Finance Corporation, Economic Policy Research Unit.

Special Economic Zones in particular, could play a strategic role in the economic transformation of Pakistan. For enhancing the positive impact of this process, the secondary multiplier effects of CPEC need to be maximized and the geographic coverage of these multiplier effects widened.

The Special Economic Zones already proposed by the government could in themselves have a powerful economic impact if taken to fruition. However, to increase the magnitude and geographic coverage of this intervention, a similar exercise could be conducted for all the backward regions of the country. The nodes could be specified in such a way that as growth begins to occur, they begin to interact in terms of factor markets, thereby generating self-sustained growth diffusion in the backward areas.

Growth nodes based on small scale industries could be greatly stimulated by establishing Common Facilities Centres where they do not exist, specifically for the skill intensive and high value added sectors as discussed in the preceding section 3.3. Some of the growth nodes in existing clusters of small scale industries that could be energized through such CFCs are:

- **Punjab:** (i) Gujranwala-Sialkot Axis (centre Sialkot); (ii) Rawalpindi-Mianwali Axis (centre Mianwali); (iii) Bahawalpur-Bahawalnagar Axis (centre Bahawalnagar).
- **Sindh:** (i) Larkana-Sukkur Axis (centre Sukkur); (ii) Nawabshah-Sanghar Axis (centre Sanghar); (iii)

Haiderabad-Nawabshah Axis (centre Nawabshah).

- **KPK:** (i) Haripur-Abbotabad Axis and Haripur-Havelian Axis (centre Haripur); (ii) Peshawar-Kohat Axis (centre Kohat).
- **Balochistan:** (i) Gwadar-Makran Axis (centre Gwadar); (ii) Lasbela-Quetta Axis (centre Quetta).

4.4. The Policy Requirements of using CPEC for Reducing Regional Disparities.

The planned CPEC has created the possibility of developing many remote areas and thereby reducing regional disparities. But counteracting the process of increasing regional disparities through CPEC requires maximizing the secondary multiplier effects through careful planning to build ancillary roads for linking remote communities with the main highway. At the same time, these communities would need to be organized, provided with skill training, credit, and communications and marketing facilities so that they can produce goods and services required by the vast traffic along the main economic corridor. China has a total trade volume of USD 4,477 billion. If CPEC is linked with the development of markets along this corridor, and thereby attracts even one percent of China's trade, a trade volume of about USD 45 billion annually could be generated by the market networks on the hinterlands of CPEC. This could have a transformative effect on economic growth and play a major role in reducing regional disparities.

5. Universal Provision of Health, Education and Social Security.

5.1. The Political, Social and Economic Dimensions of the Universal Provision of Basic Services.

The universal provision of health, education and social security can be seen in terms of three dimensions of state, society and economy: (i) These services for all citizens further the objective of equity which is an end in itself and is integral to the idea of a democratic state and social justice. This is why equity is part of the vision of Pakistan itself and indeed of the Constitution (see section 1 in this chapter). (ii) They facilitate social cohesion which is necessary for the stability of the society and its resilience in the face of exogenous shocks. Equally important, as recent research shows, social cohesion is a key factor in sustaining long term economic growth. (iii) The universal provision of health and education have a direct relationship with the economic growth objective. If the labour force of society is healthy, and has high quality education, then given an inclusive institutional structure, those engaged in employment or enterprise, will be more productive thereby laying the basis of long term economic growth.

5.2. Basic Services, the Development of Human Capabilities and Economic Growth.

Aristotle in his Nichomachean Ethics considered human functioning as being essential to the idea of value. This was taken up by Professor Amartya Sen in his seminal work on development wherein he examined the material conditions necessary for human functioning. In this context, development has been seen by Professor Amartya Sen in terms of the development of human capabilities which is inseparable from human freedom. Accordingly, the universal provision of health and education and social protection are important for the development of human capabilities. It can be argued that in an

economy and society where the enabling conditions for the development of human capabilities are institutionalized, there will be greater human welfare and higher long term growth. This is simply because, if all citizens have the opportunity to actualize their potential and the institutional structure enables them to get livelihoods in accordance with their developed capabilities, then long term productivity growth and thereby economic growth can be sustained.

5.3. The Importance of Quality Healthcare and Education for Development.

In the case of Pakistan, it has been observed that the targets for education and health have in the past, been usually specified in quantitative terms only and there has been little emphasis on achieving measurable qualitative targets in these sectors. For example, education targets are usually specified in terms of school enrollments and completion rates, coverage of university education, increasing the number of PhDs etc. While these quantitative targets are important, the quality of education should also be considered in policy planning. In this regard it is commendable that the Pakistan Vision 2025 document not only specifies a set of quantitative targets for the education and health sectors, but also puts a great deal of emphasis on improving the quality of these services. However, it is equally important to set some criteria for determining the quality of improvements in these sectors and then specifying measurable targets.

It may be suggested that the issue of the quality of education is central to the idea of development as much as growth sustainability. It is only if students are trained in critical thinking, can they develop their creative ability, so important for developing their human potential. At the same time, there is a need to

educate students on developing 'original thinking' as well, so as to foster innovative ability. This has been given considerable importance in the Pakistan Vision 2025, specifically under Pillar VI, which emphasizes the development of a competitive knowledge economy in Pakistan.

Professor Aghion at Harvard in his recent research has shown that the greater the depth and range of innovations in a country, the higher the long term economic growth. Innovation and creative thinking in an inclusive society can catalyse a wide range of cultural, artistic and social dimensions of human endeavour and thereby enriching civilization.

Quality healthcare is important for economic growth since it would help to increase productivity through reducing workdays lost due to illness and enable greater energy to be brought during work. At the same time, quality healthcare is important for poverty reduction. The UNDP National Human Development Report 2003 showed that ill health is a key trigger that pushes those at the margin into poverty.

When even one member of a family falls ill, the resultant costs are often high. What increases the healthcare costs is that lack of diagnostic facilities, inadequately trained medical personal and hence improper medication locks the family into a protracted illness. In many cases such families, due to lack of adequate medical facilities in backward areas, are obliged to travel long distances with the patient to seek medical care in large urban centres, thereby adding to both the expense and the misery.⁷ The family is obliged to sell their meagre assets and in many cases go into indebtedness in the informal credit market at extortionate interest rates. The loss of assets makes a family more vulnerable to further exogenous shocks, while the high debt servicing costs places a heavy, often long term financial burden.

It is important therefore to not only have universal provision of education and health in terms of quantitative coverage of the population, but have an operational strategy for achieving high quality in these two fields in line with the Vision 2025 objectives. Such a strategy is vital for both human development and economic growth.

5.4. Basic Services, Social Cohesion and Economic Growth.

Regina Berger-Schmitt⁸ has argued that the concept of Social

Cohesion has two dimensions: The first is the inequality dimension. "It concerns the goal of promoting equal opportunities and reducing disparities and divisions within a society. This also includes the aspect of social exclusion." The second is the social capital dimension: "It concerns the role of strengthening social relations, interactions, and ties and embraces all aspects which are generally considered as social capital of the society".

An inclusive society with greater social cohesion is likely to be more stable, resilient and economically dynamic compared to a society marked by exclusion where there is divisiveness, fragility and restricted economic opportunities. Research by Dani Rodrik⁹ has shown that social cohesion is an important determinant of long term economic growth. Rodrik provides evidence to suggest that during the two decades (1975 to 1995), countries which experienced the sharpest decline in economic growth were divided societies. Divisiveness was measured in terms of indicators of inequality, ethnic and linguistic fragmentation and lack of social trust together with weak institutions of conflict management. Furthermore, a country which is socially cohesive is also more resilient: it is likely to absorb external shocks and with minimum loss of economic growth.

5.5. Can Pakistan Afford the Universal Provision of Health and Education?

The idea that Pakistan cannot afford the universal provision of health and education is erroneous when considered in the light of historical experience which has undertaken such a policy. Many of the countries that have sustained high economic growth on the basis of the universal provision of health, education and social security gave a commitment to provide these services at a time when their per capita incomes were lower than that of Pakistan today. For example Japan under the Meiji dynasty in the mid-19th century, Germany under Bismarck in the late 19th century, Scandinavian countries in the early 20th century and China in the mid-20th century.

The per capita income of Pakistan in 2010, measured in terms of the Geary-Khamis (GK) 1990 dollars was USD 2,494. By contrast, that of Norway in 1848 was USD 912, Finland in 1866 was USD 958, Sweden in 1891 was USD 1856 and Germany in 1880 was USD 1991 (See table 2.1).¹⁰

Table 2.1. Year of Social Policy Measures and Per Capita GDPs

Country	Measure Adopted	Year	GDP Per Capita (1990 Int. GK\$)
Norway	Education for all Children	1848	912
Finland	System of General Elementary Schools Established	1866	958
Germany	Commitment to Universal Provision of Health and Education under Bismarck	1880	1991
Sweden	Universal Elementary Education and Sickness Insurance Law	1891	1856

7. Akmal Hussain, Reducing Inequality, the daily NEWS, September 8, 2016.

8. Regina Berger-Schmitt, Considering Social Cohesion in Quality of Life Assessments: Concepts and Measurement, Social Indicators Research, Volume 58, Number 3, 2002, pages 404-405.

9. Dani Rodrik, Where Did All the Growth Go? External Shocks, Social Conflict and Growth Collapses, Journal of Economic Growth, Volume 4, 1999, pages 385-412.

10. The historical estimates of per capita incomes are taken from The Maddison Project dataset and are in terms of Geary-Khamis international 1990 dollars. The Geary-Khamis method uses a hypothetical unit of currency that has the same purchasing power parity that the U.S. dollar had in the United States at a given point in time.

For details about The Maddison Project see: Jutta Bolt and Jan Luiten van Zanden, The First Update of the Maddison Project – Re-Estimating Growth before 1820, Maddison-Project Working Paper WP-4, 2013. [<http://www.ggdc.net/maddison/maddison-project/home.htm>]

REFERENCES

- Berger-Schmitt, R. (2002). Considering Social Cohesion in Quality of Life Assessments: Concepts and Measurement. *Social Indicators Research*, 58(3), 404-405.
- Bolt, J. & Luiten van Zanden, J. (2013). The First Update of the Maddison Project – Re-Estimating Growth before 1820 (No. WP-4). Maddison-Project Working Paper.
- Hussain, A. (1994). *Poverty Alleviation in Pakistan*. Lahore: Vanguard Books
- Hussain, A. (1996). An Alternative Planning Perspective for Regional Growth and Development in Pakistan. *The Lahore Journal of Economics*, 1 (1).
- Hussain, A. (2009). Participatory Development Praxis in Pakistan's Punjab: A Case Study. In P. Wignaraja, S. Sirivardana & A. Hussain (Eds.). *Economic Democracy through Pro-Poor Growth*. New Delhi, California, London: Sage Publications.
- Rodrik, D. (1999). Where Did All the Growth Go? External Shocks, Social Conflict and Growth Collapses. *Journal of Economic Growth*, 4, 385-412.

CHAPTER

3

Inclusive and Sustainable Development Through Gender Equality

CHAPTER 3

Inclusive and Sustainable Development Through Gender Equality

“Steps shall be taken to ensure full participation of women in all spheres of national life.”
Article 34, Constitution of Pakistan

1. Introduction

Vision 2025, the framework for Pakistan's development in its Pillar 1 (Putting People First) includes Gender Equality and Women's Development as an important element of the Vision. It recognizes women as key contributors to the country's economic future. The Vision further identifies ensuring access to education; promotion of enterprise, increasing women's participation in decision making, taking affirmative action in all public spheres and providing the social, legal, and physical

infrastructure as requisites for women's empowerment.

Indicators of women development while gradually improving are still not sufficient to achieve gender parity that remains elusive in school enrolment, labour market share and in the decision making arena (Pakistan ranks 135 out of 136 countries in the Gender Gap Index). Notwithstanding a number of federal and provincial legislative and programmatic initiatives, there are

1. This chapter has been contributed by Khawar Mumtaz.

Vision 2025, the framework for Pakistan's development in its Pillar 1 (Putting People First) includes Gender Equality and Women's Development as an important element of the Vision. It recognizes women as key contributors to the country's economic future. The Vision further identifies ensuring access to education; promotion of enterprise, increasing women's participation in decision making, taking affirmative action in all public spheres and providing the social, legal, and physical infrastructure as requisites for women's empowerment.

Indicators of women development while gradually improving are still not sufficient to achieve gender parity that remains elusive in school enrolment, labour market share and in the decision making arena (Pakistan ranks 135 out of 136 countries in the Gender Gap Index). Notwithstanding a number of federal and provincial legislative and programmatic initiatives, there are major obstacles to realizing women's full potential and their well-being, so essential for their optimal participation in the country's development. The fact that 64 percent of Pakistan's population is youthful and almost half is female adds urgency to the need for a strategy to benefit from the demographic dividend.

One must also note some positive societal trends that perhaps are subliminal at the moment but nevertheless significant.² Among these is the desire of parents across the country to educate daughters, the acceptance and welcoming of women's earning and contribution to household income, desire for smaller families (20 percent unmet need for contraceptives), and a drop to 1.6 percent in the number of marriage of girls below 16

years of age (PDHS 2012-2013). The judiciary has been supportive of women's rights and legislatures have enacted protective legislation.

At the same time any discussion about inclusive growth must take into consideration social exclusion of women that manifests itself in the form of: Gender defined roles with clear differences between roles and responsibilities of boys and girls, and the spaces within which these may be performed; Seclusion and segregation that go hand in hand with gendered role definition; restricted access to public facilities like schools and health care and financial and political institutions; Customary practices, sanctioned by tradition, custom or culture; lack of assets, whereby women are denied the right to inherit family land and other assets; violence against women/harassment and related fear; lack of information about legal, economic or political rights that further reinforces women's low status; dependency on male relatives; and widespread structural inequity i.e. poverty, that perpetuates exclusion.³

Given the acknowledged importance of gender equality and women empowerment for inclusive and sustainable development in Pakistan and the changing social environment, this chapter seeks to detail the challenges that stand in the way of women's full participation and recommend ways to address them. It starts with an overview of the current status of women, including initiatives taken, examines obstacles/barriers and concludes with recommendations.

2. Women's Status: An Overview

Education, health, and labour force participation are key measurable indicators of women's status that mediated by social norms determine access to resources, economic opportunities, control of assets and participation in decision making forums.

2.1. Literacy and Education.

Literacy in Pakistan stands at 57 percent with female literacy at 47 percent against that of males at 70 percent (2014 figures). According to the PSLM 2013-14, enrolment of girls (6-10 years) is 60 percent at primary school level versus 69 percent for boys; 32 percent (ages 11-13) in middle school compared with 38 percent for boys; and only 20 percent (ages 14-15) in Matric against 28 percent boys. These figures reflect a high dropout rate for girls from the time of enrolment in primary school to high school. There are rural-urban differences as well as regional ones. Interestingly gender parity in post matric educational institutions (ages 15-24) has increased from 0.65 in 2000/01 to 0.8 in 2013/14 indicating that girls who manage to finish high school go on to higher levels with gender parity achieved at post-graduate level.⁴ However, attaining professional degrees does not always lead to women entering the work force. Among professional degrees more women opt for medicine and the highest percentage of women professionals are medical

graduates. It may be noted that women usually outsmart male peers in examinations.

One critical factor perhaps for low enrolment is that of fewer schools for girls than for boys -- 60 percent of primary schools, 21 percent of middle schools and 14 percent of high schools are for girls. Among reasons for children not going to school (PSLM 2013-14) "Parents don't allow" is the major one for girls (23 percent; 3 percent boys), followed by "Too far away" (8 percent girls and 2 percent boys), and "Too expensive" (18 percent girls and 12 percent boys). The latter is significant especially if children have to be sent to private schools (current enrolment is 26 percent private schools, 71 percent in public schools).⁵

The proportion of institutions that women can enroll in (Higher Secondary / Inter and Degree Colleges) after Matric goes up to 47 percent.⁶ At the doctoral level the disparity re-emerges with 126 female recipients of HEC's PhD scholarships in 2011 compared with 695 males; and 86 women awarded foreign female scholarships against 775 men.⁷ The reason for this drop in part lies with women entering the stage of life where home making and child bearing responsibilities become a priority; 49 percent of women are married between ages 20-24, and 82 percent at ages 25-29 years.⁸

2. National Commission on the Status of Women: Annual Report 2013, GOP, NCSW, Islamabad, 2014, pages 5-7.

3. Khawar Mumtaz, Issues Paper: Gender and Social Exclusion in Pakistan. Unpublished. 2004

4. LFS 2013-14

5. Incidentally, madrassah enrolment for girls is 1.9% and 2% for boys. PSLM 2013-2014

6. Ibid.

7. HEC Annual Report 2010-2011 as quoted in Zaidi Y., and Farooq S., Women's Economic Participation and Empowerment in Pakistan, Status Report. Islamabad, UN Women, Pakistan. 2016 (Forthcoming). Zaidi and Farooq note that HEC Medium Term Development Framework 2010-2015 does not mention women in the framework, or the chapter on improving equity in higher education.

8. PSLM 2011-12

Education, skill training and levels of earning have a symbiotic relationship. The demand for training the new labour market entrants alone is estimated at 1.3 million per year.⁹ According to a World Bank study, only 2.4 percent of the Pakistani labour had received formal training (2007). Skill training (85 percent) is mainly regulated and provided by public sector institutions: NAVTTC -- National Vocational and Technical Training Commission (NAVTTC) responsible for skills sector policy formulation and regulation; and provincial Technical Education and Vocational Training Authorities (TEVTA) are also performing similar functions. The National Skills Strategy (NSS) 2008-12 provides a framework for skills sector reform. The public sector institutions are sluggish and have the capacity to meet about a quarter of what is needed.¹⁰ The quality of the training offered is not relevant to market needs and does not ensure employment. Following of NAVTTC-set skill standards by all skill providers is weak as also accreditation and testing systems. Quality assurance systems are missing; engagement with businesses is minimal and links between students, skill providers, and employers are not strong.

Given women's levels of illiteracy, poor schooling and exclusion from labour markets points to the need of differentiated training for women to increase labour productivity. Skills training for women have gained attention for improving their capacity to earn. Only 11 percent of women between 15-64 years, and mostly with primary and less education, have received technical or vocational education; 17 percent men have received technical or vocational education in the same age cohort. Of these the majority of women received training in embroidery and knitting (13 percent; M = 1.5 percent) or in tailoring and sewing (75 percent; M= 9.8 percent)¹¹ (PSLM 2013-14). The average earning for the trainings received by women as captured in LFS 2013-2014 is approximately PKR 5000 per month whereas men with training as drivers (preferred training for men with 32.6 percent opting for it: F= 0.9 percent) or assorted trades earn PKR 12000 per month.

A skill development initiative of the Punjab Government (PSDF) that focused on providing skills to men and women for jobs in the market in the four poorest districts of Punjab found that women's low levels of numeracy and literacy hampered delivery of non-traditional training. According to the household survey of southern Punjab for PSDF, 95 percent of the households acquire skills through family, informal trainers, or self-practice.¹²

2.2. Health and Reproductive Health.

Anemia, malnutrition, early motherhood, frequent pregnancies, and maternal mortality combined with services of uneven quality adversely impact women's health status. National Nutritional Survey (2011) reported Vitamin D deficiency in 86 percent women. It revealed higher deficiency of iron (26 percent), Calcium (58 percent) and Vitamin A (49 percent) among

pregnant women.¹³ According to PDHS 2012-2013, women between the ages 15-19 (adolescent) and 20-29 are more likely to be underweight, and 14 percent of women of reproductive age (15-49) are thin/underweight or undernourished. The National Nutritional Survey 2011 reported 19 percent women as underweight and 12 percent of short stature. Both these conditions prevailing in socio-economically poor households result from inadequate nutrition during childhood and adolescence and lead to low birth-weight babies, difficult child bearing and complications. Pakistan's count of still birth is also the highest in the region. Within all these indices there are rural-urban and inter-provincial disparities.

RH related problems include a low contraceptive prevalence rate (CPR) of 35 percent which has improved but not enough to address the unmet need of contraceptives (20 percent), and reduce the Total Fertility Rate (TFR) from 3.8 per woman to the desired TFR of 2.9. Low CPR is linked to unplanned pregnancies (16 percent according to PDHS 2012-2013), abortions (2.2 million per year) and unsafe abortions that affect 0.7 million women in the country.¹⁴

Maternal Mortality Ratio is 275/100,000 live births with maternal deaths due to three main preventable causes: postpartum hemorrhage (27.2 percent), puerperal sepsis (13.7 percent) and eclampsia (10.4 percent). Pre and post-natal consultations while increasing, (69 percent women reporting at least one pre-natal visit and 29 percent post-natal)¹⁵ have to further improve. Some 52 percent deliveries are at home and by traditional birth attendants whose capacity to deal with complications is inadequate. Several initiatives have been introduced with some measure of success. These include the National Maternal and Neonatal Child Health (NMNCH) program, the community midwives program (12000 to be trained) and the Lady Health Workers (LHWs) program (to be expanded to 150,000 for universal coverage).

2.3. Women's Labour Force Participation:¹⁶

This section brings the highlights of the analysis done by Y. Zaidi and S. Farooq in their forthcoming work, Women's Economic Participation and Empowerment in Pakistan, Status Report. They have used the LFS, PSLM and other available data to arrive at the following:

26 percent of all women (14.4 million) ages 15-64 are in the labour force and almost 36 percent (41 million) women of the entire population ages 15-64 are not active in the economy.¹⁷ Cumulatively, Pakistan's labour force (men and women) is largely employed in the informal sector (73 percent) and only 23 percent in the formal sector.¹⁸ Women are currently concentrated in agriculture (73 percent) and 27 percent in non-agricultural sector, with little change since 2006-07.¹⁹ Of the women in non-agricultural sector 22 percent are employed in the formal sector

9. Review of Skills Market. Mott MacDonald. June, 2014 (quoted in Business Case Summary Sheet: SD Prog)

10. Ibid.

11. PSLM 2013-2014

12. Designing Active Labor Market Policies in Southern Punjab; Evidence from Household and Community Surveys, Centre for Economic Research Pakistan (CERP) 2012. www.ideaspak.org/wp-content/uploads/2015/09/Peop_Skills_Report/pdf visited 7/5/2016

13. Level of deficiency among non-pregnant women was: iron 26%, Calcium 51%, Vitamin A 43%.

14. Post Abortion Care in Pakistan: A National Survey. Population Council Pakistan, 2013

15. PDHS 2012-2013

16. This section relies heavily on Y. Zaidi and S. Farooq's excellent analysis of female labour force participation and employment from their forthcoming study Op cit.

17. LFS 2013-14

18. Ibid.

19. Ibid

and the rest 78 percent in the informal sector. Of these 30 percent are home based workers, compared to 3 percent men.²⁰ The authors' calculation is that together their contribution is PKR 400 billion or 3.8 percent of GDP.

Almost 70 percent of all women in the labour force fall in the age bracket 25-59 years (as also males). The percentage of women employed in ages 20-49 is higher at 25 percent to 30 percent than for the other age groups. The percentage of married women in the work force is (26 percent) with 24 percent having a child under the age of 3 years. The labour force participation of women and men remains largely unaffected irrespective of the number of children or their age. It is either the very poor, often illiterate women who work, or those who have higher education. In households with higher dependency ratios, women are more likely to be in the workforce for economic reasons and child care support in larger households.²¹

Women comprise 39 percent of the labour force in the "Agriculture, forestry, hunting and fishing" sector, 30 percent "Professionals", 22 percent in the "Community, social and personal services" sector, 20 percent in "Manufacturing" and have 18 percent employment share in the category of "Crafts and Related Trades". In the first category most of the women are concentrated in animal production (47 percent), followed by mixed farming (23 percent) and growing non-perennial crops (18 percent). Under the category of "Professionals" 92 percent are in teaching. Of these 50 percent are primary school teachers, followed by secondary school teachers. Only 4.9 percent of the female teaching professionals are in University and higher education. Besides teaching, women are employed in health (5.3 percent) in the Professional category (more as midwives and lady health visitors than doctors). Women owned enterprises are only 10 percent of the total with only 5 percent of them employing other people.²²

From 2003 to 2013-14 the largest change in percentage points is of female workers who have no schooling (+13 points) or have primary or below (+8 points) indicating poverty as the driver of paid work.²³

Despite the fact that there is a minimum wage prescribed by the government 77 percent of female employed workers (42 percent men) earn less than PKR 10000 per month. The situation is worse in rural areas where 87 percent of female workers earn less than the minimum wage. Even women (30 percent) with a college degree earn less than the minimum wage when informally employed. Only in the formal sector women are likely to earn minimum wage. According to Y. Zaidi and S. Farooq's calculation, "men are 1.7 times less likely to earn minimum wages." In their view the reasons for women's lower remuneration are "the non-availability of full time work, the 'preference' of women for part-time or home based work, or the seasonal nature of most agricultural work." Zaidi and Farooq point out that wage inequality between males and females is greater in low paid jobs. Across the board there is a gender wage gap for

similar nature of work except for engineers (10 percent), medical practitioners (5 percent) and product and garment designers (18 percent). The wage gap even in primary and secondary schools, where women are present in relatively larger numbers, is of 57 percent (primary schools) and 40 percent (secondary schools).²⁴

Among interesting points in Zaidi and Farooq analysis are that almost 32 percent of women in the labour force have a college degree compared with 86 percent men with college degrees; education from primary education upwards can double women's chances of taking up non-agricultural work (with intermediate degree 23 times more likely; with graduate degree 134 times more likely). Female headed households are more likely to participate in the labour force; if the head of household is an unpaid family worker, women are four times more likely to work and if he is self-employed in agriculture, women are five times more likely to work. This implies that reason for women working, or not, is not only determined by social and cultural norms, but there are other dimensions to the decision as well.

2.4. Women's Political Participation and Decision Making.

Decision making is a very integral dimension of empowerment beginning from the household and extending to the public sphere. Generally women have little or no say in decision-making on household and community level, or personal issues, like marriage and divorce. Socially disadvantaged women's participation in public activities and in representative bodies is even more difficult. Historically few women have managed to reach public decision-making positions except those from privileged class or caste. However the opening of public administrative services to women has succeeded in inducting them into the civil services and management group (DMG). More women are competing for entry and this year out of 226 CSS officers given appointments 45 percent are women.²⁵

Affirmative action has ensured women's participation in legislatures and local government.²⁶ Women on reserved seats are indirectly elected on the basis of proportional representation and a few women are elected on general seats.²⁷ Women have been elected Speakers (of the National Assembly; of Balochistan and KP Assemblies) and Deputy Speakers.²⁸ They chair Standing Committees, move Bills, and hold ministerial positions. Pakistan also has the distinction of electing the first woman Prime Minister in the Muslim world. Many indirectly elected women now are asking for constituency based elections on reserved seats and allocations of tickets for general seats. There is also a Bill tabled asking for 33 percent membership of women in decision making forums of political parties where they are minimally included.

The 2013 general elections saw women's unprecedented participation in the electoral contest – 147 women contested general seats in 105 national constituencies and 301 in 203 provincial constituencies. Equally significant was that nationally

20. Ibid

21. As estimated by Zaidi and Farooq from HIES 2013-14

22. LFS 2013-14

23. Ibid

24. Estimated from LFS 2103-14 by Zaidi and Farooq

25. The News. 27.4.2016

26. 60 seats are reserved for women in the National Assembly, 17% in provincial assemblies and the Senate.

27. 16 women in the NA of 2008-2013; 9 in NA of 2013-2018; 9 in PA of Punjab in 2013 elections.

28. Dr. Fahmida Mirza, the first woman Speaker of NA; Raheela Durrani, first woman Speaker of Balochistan Assembly; Dr. Taj Rouhani, first Deputy Speaker of KP Assembly; Dr. Ashraf Abbasi, Dy. Speaker of Sindh Assembly; Shahla Raza, also deputy Speaker of Sindh Assembly.

87 women stood as independent candidates and in provinces 190 were independents including from Dalit community and from remote Dir in KPK. While more tickets were given by political parties to women, these constituted only 3 percent of the total.²⁹ Women's voter turnout was also higher than ever before, though in pockets across the country women were restrained from voting.

The Local Government law that provided 33 percent quota for women at all three tiers and direct election at the lowest tier (Union Council) lapsed in 2010 after two rounds of elections. Provincial laws subsequently passed have varying numbers/percentages of women's seats and almost all indirectly elected except 2 at UC level in Punjab and 1 in Sindh. KP has directly elected women in Village Councils. New LG laws are a set-back for women who for the first time came into the mainstream of public life through this process. For a large number of women LGs had proven to be the training ground for participation in politics and governance, a few became UC vice-chairs, members and nazims of District Assemblies.

Special quotas for women have been introduced in administrative and public services to ensure women's inclusion. The Federal Government has a 10 percent quota for women in all services, Punjab has a 15 percent quota and Sindh is contem-

plating a 25 percent quota. The quotas so far have remained only half filled (less than 5 percent). Interestingly lower judiciary (sessions and district judges) is the exception where the quota has been filled. Very few women have become judges of High Courts and none a judge of the Supreme Court.

Recognising the importance of women's participation, Punjab legislated the Fair Representation Act 2014 for 33 percent membership for women in the boards of all public sector institutions. It backed the legislation with the creation of 100 new posts and requisite budgets. Filling the position is posing a challenge. Anti-sexual Harassment at Workplace Act, 2010 and the establishment of Ombudsmen's offices in Punjab, Sindh and Federal capital has provided an avenue of relief to working women. The law is still not fully implemented in all parts of the country. Support services like child care facilities; transport and working women hostels are in short supply. Shelters and crisis centres for women exist in all provinces but vary in number and quality (3 in Balochistan, one in KP, 5 in Sindh and 33 in Punjab). On a priority basis existing crisis centres and shelters should be made fully operational with staff, upgraded facilities and proper documentation systems. A time frame of 2 years would be adequate for this given the pace of approval processes and budget cycles. For new services within a time frame of up to 5 years at least one shelter per district should be aimed for.

3. Some Measures and Initiatives Taken

A large number of initiatives/measures were taken over the last 20 years to bring women into the development process. These range from institutional measures, to policy commitments and legal reform with the objective of achieving gender equality, addressing women's specific needs and removing the barriers that constrain women.

3.1. Institutional Changes for Protecting Rights of Women and Development.

Institutional mechanisms include establishment of Women Development Departments in provinces (1996), and National Commission on the Status of Women (NCSW) in 2000 as a statutory body for the promotion and protection of women's rights. In 2012, it was made financially and administratively autonomous. Provincial Commissions were set up in KP and Punjab; Sindh passed the law to set up the Provincial Commissions on the Status of Women. Placing women's desks in police stations and a drive to induct women in the police force was decided upon (currently women are 1 percent of the police force) and a Gender Crimes Cell set up in the National Police Bureau (2006) to collate national data on violence against women, among several other initiatives.

3.2. Women's Participation in the Political Sphere.

Women's presence in the political arena has been enhanced; women have been responsible for a number of positive legislative initiatives in the national and provincial legislatures (sexual harassment, acid crimes, anti-customary practices, domestic violence, age of marriage, widow support, etc.). Very important was the delinking of rape from adultery (2006) through the Women Protection Act 2006 and the "Honour killing" law 2004 which needs further strengthening. Complaint cells have been made in most police stations of KPK, the Punjab Women's

Empowerment Package (PWEF) and Punjab Women's Empowerment Initiative, Sindh Women's Empowerment Policy, Gender Mainstreaming Committees and laws to protect women's inheritance rights, including the Punjab Partition of Immovable Property Act, 2012 and the Punjab Land Revenue Amendment Acts, 2012, Punjab Women Protection Act 2016, etc. Sindh and Balochistan enacted Domestic Violence Acts, and Sindh raised the age of marriage for girls to 18 years – other provinces and National Assembly have resisted attempts for a similar law. A number of help lines are now available for women seeking information, guidance and assistance in situations of distress.

3.3. Women in Small Business Enterprises.

Micro credit for women, largely for the poorest and as a poverty alleviation measure, is provided by a number of organizations (51 small and large)³⁰ like Pakistan Poverty Alleviation Fund (PPAF), Khushali Bank, Akhuwat, Tameer Bank, Kashf, various Rural Support programmes and other organizations. First Women's Bank (FWB) was set up to provide financing for women owned enterprises. SMEDA's mandate is to support women as well as men in setting up of small and medium size enterprises. Balochistan is in the process of establishing a Business Incubation Centre for women in Quetta which brings all support services (legal, banking, designing, marketing, etc.) required for setting up a business under one roof. The project is being set up and more information is awaited about its scope and content. When completed it would be the first of its kind; a model to be replicated. The Trade and Export Promotion body has focused on promoting women's businesses in high end garment/fashion by holding expos in and outside Pakistan. This initiative would be a model to study and replicated in other provinces. Banking services in degree colleges and women's universities need to be made available. The First Women's Bank is interested in doing

29. For the NA 21 political parties gave 60 tickets to women; at the provincial level 31 political parties gave 111 tickets. (Looking for ref. – KM)

30. Pakistan Economic Survey 2014-2015. p 258.

so to encourage savings as well as develop products for women students. This needs to be followed up and introduced in all provinces in educational institutions where these are not available. It would serve the dual purpose of developing a range and scope of services of the FWB and provide benefits and financial options for young women. The Prime Minister's Youth Loan scheme has 50 percent loans reserved for women and up to Nov 2015 only about 14 percent female youth had availed the facility (897 out of 6413).³¹

3.4. Women Focused Income Support.

Perhaps the most significant initiative with an impact on women's household status is the Benazir Income Support Programme (BISP) initiated in 2008 for the poorest households where cash transfer (PKR 1500/month) is in the name of the woman of the house who receives the money through smart cards.³² Almost 5 million households have benefitted from it. Different packages have been added to help beneficiary families to exit poverty: Waseela e Taleem Programme, a conditional cash transfer programme for beneficiaries who enrol children in school in collaboration with education departments of provinces/regions. The target is to enrol two million children by the end of 2016. Waseela e Sehat, Group Life and Health Insurance Scheme for BISP beneficiaries, whereby the dependents (widows/mothers/children) of deceased are compensated for PKR 100,000/- in case of natural or accidental death of the breadwinner. It also has provision for outpatient and in-patient medical and surgical coverage within defined parameters. Waseela e Haq (karobar), provides for loan up to PKR 300,000/- for enterprise development to randomly selected beneficiary families who meet the programme criteria. In addition, BISP which plans to encourage startups for beneficiaries and young entrepreneurs, has launched an E-commerce initiative, and is partnering with entrepreneurs to promote employment of its beneficiaries through skill development and job placement.³³

The programme requirement of a CNIC triggered a rush for women's CNICs -- the number of women with CNICs increased by 104 percent in the past five years opening the door for other opportunities and benefits including that of voting. The programme has a rigorous monitoring system to identify problems for redress. It is managed through a state of the art documentation system and software.

4. Challenges

Notwithstanding wide ranging legislative and institutional measures women empowerment indicators have been stagnant for almost a decade. On global indices Pakistan's ranking is not improving. It stood at 147 out of 187 countries on the UNDP's Human Development Index in 2014 on the basis of health (life expectancy at birth), education (years of schooling) and Gross National Income.³⁶ World Economic Forum's Global Gender Gap index ranks Pakistan 144 out of 145 countries (2015). Without actualizing the potential of its working age population, particularly women, Pakistan's goal of sustainable development and growth will remain a challenge. Determinants of women's

3.5. Skill Training for Women.

An innovative initiative is the Punjab Skill Development Fund though designed initially as an intervention for alleviating poverty in the 4 poorest districts of Punjab, it provides a model whose principles may be considered for other skill training programmes. It has now been expanded to 14 Districts of Southern and Central Punjab to fill the skill gaps in "growth oriented sectors, value chains and markets with job absorption capacity."³⁴ It seeks to develop a market for private sector quality skill-providers using a competitive process for granting public grants (open to public sector institutions also) against a strict criteria. PSDF has a strong gender balanced Board with majority of the members drawn from the private sector chosen for their expertise and experience. Its trainings are based on solid research and are designed to match the learning needs and the socio economic context of those to be trained. The programme includes strict third party monitoring to ensure quality of training and delivery by training providers. A grievance mechanism is also in place to deal with trainee complaints. Trainees are paid a stipend and of the targeted 135,000 trainees in phase I (Dec.2015), 40 percent are women. 67 percent of the trainees were found to have found employment within 16 months of the training; 90 percent of these were unemployed before the training.³⁵

3.6. IT Based Data Generation for Violence Against Women.

In the area of data collection it is worth mentioning that the PBS has introduced documentation up to four digit code in the Labour Force Survey, which makes possible micro data analysis. PSLM has started district level collection since 2012-2013 and MICS collect data from districts. MICS 2013-2104 has included a question on perceptions regarding VAW. PDHS 2010-2013 for the first time had a module on domestic violence experienced by ever married women. A useful and first of its kind initiative has been the Gender Management Information System developed by Punjab PCSW and Urban Unit of the Government of Punjab. With indicators aligned with reporting requirements under Pakistan's international commitments, the GMIS is potentially a valuable tool for monitoring and tracking and providing direction for policy making. NCSW has developed standardised indicators for research on VAW that are globally and regionally comparable and include specificities of violence in Pakistan. Acid Survivors Foundation has set up an IT based system to track acid crimes and related cases for monitoring.

economic and/or political participation are women's poor education, health, skill set, and literacy status, social/cultural constraints including restricted mobility, employment opportunities and lack of capacity. As the above review shows vulnerability in employment is due to both: the levels of education and skill, and opportunities and nature of work. The challenges are institutional, social/cultural, and political.

- (I) Institutional: A number of organizations have been established in the wake of Beijing Women's Conference in 1995 for the promotion of women – women depart-

31. Pakistan Economic Survey 2014-15 – Ministry of Finance www.finance.gov.pk/surveyvisited 20/4/2016

32. Poor households are determined through a system of scorecards and pre-defined criteria.

33. Benazir Income Support Programme www.bisp.gov.pk visited 20/4/2016

34. Business Case Summary Sheet – SD Prog. Opcit.

35. Ibid.

36. UNDP Human Development Report, 2015. p. 208

ments, women's commissions, skill development centres, micro credit, etc. --- most of these located in the public sector suffer from infrastructural and systems weakness. Majority are grossly understaffed, under resourced and without the capacity to deliver on their mandates. Many organizations remain leaderless, sometimes up to a year or more, when the term of the head of an organisation ends or he/she is transferred. Staff appointments are delayed, Boards are not notified on time, office space is unavailable, procedures are tortuous and hurdles are placed on smooth functioning of organizations in the maze of governmental approvals. Thus continuity suffers; funds lapse and the quality and purpose of the organizations is undermined.³⁷ Communication between these organizations and other parts of the government dealing with services for women is minimal.

Budgets don't match the mandates -- budget allocations for education and health are a case in point. The optimal budget for education in Pakistan is estimated to be 4 percent of GDP.³⁸ However in 2015-2016 the budget allocation for education was 2.68 percent of the GDP. Similarly, in 2014-2015 the expenditure on health was 0.42 percent of the GDP (the Pakistan Medical Association demanded that allocation for health should be 6 percent of the GDP).

- (ii) **Training:** Shortage of skilled labour is one of the top obstacles for business development in Pakistan.³⁹ Training programmes for skills development are not linked to market/job needs or employability nor do they track the outcome of the training. The link between industry and training institutes is also weak or non-existent. The above overview section shows that education and vocational training need to be combined to prepare young women (and men) for employment. There is also a shortage of skill training institutions for women geared to the demands of a growth economy either for jobs or for self-employment. Narrow based traditional skills can at best give poor monetary returns, largely in the informal sector. Modern technical based industries are suitable for women as can be seen in other developing countries (electronics e.g.). Educated women can also be trained in supervisory and human resource management skills.
- (iii) **Safety/Security:** Women's vulnerability has increased especially of those belonging to religious and ethnic minorities; natural disasters with their displacement of families have also been a setback. Physical security is a major barrier to women's participation in accessing educational/training institutions and employment. "Distance from school" is one of the reasons for girls not being sent to school. Middle and high schools being fewer in number are further away from home with no provision for safe travel, and not equipped for meeting adolescent girls' needs -- working bathrooms, boundary walls and sanitary towels. Inadequate housing or hostels for working women, especially in rural areas, is a

discouraging factor for employment. On one hand there are vacant positions, and on the other trained women like doctors unwilling to take up jobs -- only 58 percent of qualified women doctors practice or work. Data shows that marriage and children do not impede working if support systems are available.

- (iv) **Violence and Harassment:** the changing social environment where on one hand, there is no aversion to educating girls or their employment, on the other hand there is no tolerance for women making decisions about their lives, especially marriage.

Pakistan's crisis of militancy and extremism exacerbates the social environment especially for women. Violence against women and girls in its various forms -- rape, abduction, sexual abuse and harassment, forced marriages, domestic violence, acid crimes and killing in the name of honour -- seems to be on the rise despite the passage of many laws. Overcoming VAW is thus a continuous challenge that curbs women's fuller participation in education, employment and other avenues of public and private life. While there is an increase in reporting acts of VAW the police behaviour is crude and insensitive and the judicial process slow with a conviction rate of 2-3 percent. Very often non legal forums (jirgas, panchayats, etc.) are turned to for settlement usually at the cost of women. New laws or amendments in existing laws, for ending impunity in cases of murder, domestic violence, rape and gang rape is violently resisted by religious political parties.

- (v) **Information Deficit:** Awareness and knowledge about laws, support institutions, procedures, where to go, what steps to take as well as about services and employment opportunities, is very limited among the public as well as police and other institutions.
- (vi) **Data Usage and Gaps:** The quality and scope of data has improved in Pakistan. A major gap is that caused by the postponement of the decennial census that was due in 2008. Gaps still remain in the data and have implications for programme and policy planning, especially in areas related to drawing women into high skill and high wage employment. Data and research are not optimally used for designing programmes and policies.
- (vii) **Education:** reducing dropout at secondary and high school levels is a major obstacle to girls'/women's ability to acquire and absorb skills that can lead to high wage employment. Vocational training based on IT and other technical knowledge requires a minimal educational foundation. Of the 25 million children out of school approximately half are girls.
- (viii) **Health:** Poor health especially of adolescent girls and women of reproductive age is an impediment to full participation in paid economic activities. Health facilities are either for girl children or married women, the health of unmarried and adolescents get overlooked.

37. BOD of First Women's Bank is incomplete, there is no Minister for Women Development in Sindh, women shelters/crisis centres are understaffed and salaries not paid on time, PCSW in Sindh has not been notified whereas the law was passed in early 2015, NCSW is without a Chair since January 2016 even though the selection process was started in mid-2015; PCSW law in KP has been drafted and reviewed by Cabinet but has not been tabled yet; etc. etc.

38. Prime Minister and Finance Minister are on record on this figure. See Alf Ailaan, Government Allocations for Education in Pakistan; The Road to Getting to 4% of GDP. www.alfailaan.pk/budget_allocation_2015 visited on 20/4/2016

39. Enterprise Surveys, What Businesses Experience, World Bank, Pakistan 2007 (Quoted in Business Case Summary Sheet: SDProg.)

5. Recommendations

The above review shows that 41 million women in the 15-64 age group, potentially a huge workforce, is not fully mobilised for the growth path the government wants to follow. An estimated 1.3 million trained/skilled work force per year is required for Pakistan to develop into a middle income country by 2025. Data evidence points to education as an important determinant of women's labour force participation with positive correlation between level of education and participation rate and remuneration. It would not be misplaced to presume that "national economies suffer when a substantial part of the population cannot compete equitably or realize its full potential."

A multi-pronged strategy is needed to ensure women's equality, removal of discrimination and disparity, and enabling them formally to participate in the economy -- not only to be counted but also to be adequately compensated. The strategy should aim at building what Naila Kabir calls "basic human capabilities" i.e. educational, nutritional and health needs of girls and women, as well as formulating a comprehensive national policy for women's high skill/high wage employment that includes ownership and access to resources like land, equipment, and finance. Some of the social barriers manifested as concerns of safety and security should be dealt with in providing access to affordable education and health services especially for meeting the needs of adolescents and young married women. Transport availability and security can also be made mandatory for all places of work. Social and customary barriers can be countered by above safeguards as well as implementation of protective laws.

Poverty, with a high percentage of the population suffering from multi-dimensional poverty (39 percent) is the determinant of choices made by households regarding female education and work. Stagnant economy, embedded social structures, and slowly changing gendered attitudes/norms, can be best impacted by a strong focus on women's active inclusion in the economic process and the concomitant development of their agency.

More specific policy recommendations keeping in mind the above stated challenges are:

- i. To deal with dropouts at middle and high schools increase in the number of middle and secondary schools for girls is urgently needed to bring them at par with boys' schools with enhanced budgetary allocations for girls' schools. Where possible primary schools may be upgraded to middle, and middle and secondary schools may be combined to ensure continuity of schooling for those who have entered the school stream. Provision of transport where schools are at a distance from home would take care of that barrier. More girls' schools will open up opportunities of employment for women as teachers.
- ii. To address the issue of female malnutrition and reproductive health needs, operationalize rural and district health centres by equipping them, including with transport for emergency obstetric care, medicine, tests and family planning advise. Special allocation of budgets for accommodation, transport and security needs of female doctors and staff are essential in rural areas.
- iii. Given the fact that there are wide gender wage differen-

tials, extension of gender equity concerns to all sectors-- economic, legal, social development/welfare and governance is strongly recommended. Strict implementation of equal wage for equal work to remove discrimination in wages; ensuring compliance with the minimum wage norm; recognition of home based work, other informal work and unpaid family work to ensure legitimate payment and eliminate exploitation of women, provision of skill training for women (traditional, non-traditional, technical, etc.) linked to market needs and employment.

- iv. Amendments in discriminatory legislation and new legislation to protect women from violence at home and in public spaces with provision for support systems (shelters, refuges, safe houses, etc.), ensuring access to assets and resources (inheritance, employment organizations, credit and markets), and protection of assets.
- v. Developing synergies between various existing national and provincial social sector departments, commissions, agencies, women's rights organizations, banks and micro-credit institutions to develop coordinated initiatives for designing interventions, programmes and strategies as well as monitoring systems. It is recommended that PCSWs act as the coordinating organizations in provinces and NCSW for coordination at the national level. The model of IPMG that NCSW coordinates can be institutionalised. Key departments are represented in the provincial and national commissions by senior bureaucrats and Provincial Commission Chairs are members of the National Commission thus structural channels already exist. These statutory bodies have a broad mandate and authority that could be more effectively utilised.
- vi. Reorientation of skill training organizations to design trainings that are aligned to (and respond to) the need of employers and industry to ensure employment for women/girls; establish horizontal links with, businesses and employers, academia and representatives of workers organizations to develop appropriate training programmes. Use research to establish the socio economic context for designing and delivering skill training to women (women may require in situ training, may not want to spend time travelling given their household/care work) and for course correction of programmes/initiatives.
- vii. Strengthening data sources for collecting gender disaggregated data for policy and programme development. In view of violence being one of the major obstacles to women's full participation in economic, political and public life data on VAW be collected by National Police Bureau's Gender Crime Cell from police stations using the standardised indicators developed by NCSW. Expedite the launch of the national survey planned and designed by NCSW and approved by the Planning Commission to establish baseline data on VAW and determine the economic cost of violence. Funds for the exercise have already been secured. Put in place GMIS using the same indicators as the Punjab GMIS for inter- provincial comparability. Provincial data to be integrated by NCSW would feed into reporting on

international treaties and conventions. Undertake research to identify reasons for women not availing opportunities like quotas in administrative jobs, and loans and credits, in order to remove other barriers (than VAW) to women's participation in economic and professional activities.

- viii. Women's share in business is very limited (10 percent women owned businesses with only 5 percent offering employment). In order to induct women, provision of incentives to women to develop small and medium enterprises is recommended. Incentives can be in the shape of dedicated allocations for lending by financial credit organizations to women in livestock, garments, textiles, government prioritized growth industries, and education, health, creches and canteens. And government incentives to businesses and corporations to invest in women led businesses taking affirmative action in the form of quotas in government contracts for women owned businesses.
- ix. Strengthening the First Women Bank by upgrading its capacity to develop products to attract highly educated women and professionals to enter the economic mainstream.
- x. Ensuring women friendly working environment with separate washrooms and common rooms and implementing the Anti-sexual Harassment at Workplace Act 2010 in letter and spirit by displaying the Code of Conduct and establishing Complaints Committees in all

offices and work places in public and private organizations and corporations. The Implementation Watch Committees should be reactivated with coordination responsibility in provincial Ombudspersons office. Where the office is vacant Ombudsperson to be appointed at the earliest (KP and Balochistan).

- xi. Women's reserved seats in all provincial local government tiers should be filled at the earliest. Desired representation is at least 33 percent representation of women at all tiers for creating the "critical mass" for women to have a voice. Equally important is the provision of direct election of women on reserved seats at all elected tiers of LG. Rules of business developed by LGs should have provisions for women to be included in committees; mandatory capacity building and training programmes for women councillors to familiarise them with the system and their roles and responsibilities at different levels. Materials and hand books for easy reference, and training material will be required in each province according to the specificities of the Local Government Law of the province.
- xii. Recognising that awareness and communication are important levers of change especially for changing rigid mind-sets. Development of a communication strategy is recommended to develop information products for print, sound and electronic media, revision of text books with the objective of addressing inequality, introduction of cultural activities in schools and colleges, valorisation of successful women should be a high priority.

REFERENCES

- Alif Ailaan. (2015). *Government Allocations for Education in Pakistan*; The Road to Getting to 4 percent of GDP. www.alifailaan.pk/budget_allocation_2015. Visited 20/4/2016
- Cheema, A., Khwaja, Asim I., Naseer, Muhammad F. & Jacob N. Shapiro. (2012). *Designing Active Labor Market Policies in Southern Punjab; Evidence from Household and Community Surveys*, Centre for Economic Research Pakistan (CERP). www.ideaspak.org/w.content/uploads/2015/09/Peop_Skills_Report/pdf visited on 7/5/2016
- Mumtaz, K. (2004). Issues Paper: *Gender and Social Exclusion in Pakistan*. Unpublished.
- National Commission on the Status of Women. (2014). *Annual Report 2013*. GOP, NCSW. Islamabad. pp. 5-7.
- Rashida, G., Zakir Shah & Iram Kamran. (2013). *Post Abortion Care in Pakistan: A National Survey*. Population Council Pakistan, Islamabad.
- Zaidi, Y & Farooq, S. (Forthcoming). *Women's Economic Participation and Empowerment in Pakistan, Status Report*. Islamabad, UN Women.

CHAPTER

4

Entrepreneurship Opportunities for the Youth, Women and Minorities through Start-Up Banks: Institutional and Conceptual Features

CHAPTER 4

Entrepreneurship Opportunities for the Youth, Women and Minorities through Start-Up Banks: Institutional and Conceptual Features¹

1. Introduction

An important dimension of Inclusive Development is to provide opportunities for entrepreneurship to the youth, particularly young women and hitherto excluded members of the minority communities. This chapter examines the concept and viability of setting up banks which focus on supporting start-up companies and entrepreneurs. A start-up company is one which is wholly owned by its founders. Traditionally, the value of such companies is a function of the nature of the financing provided. Hence, the availability and source of financing is a critical element in the success of start-ups.² The title “start-up banks” is actually indicative of a multi-dimensional approach: a bank for start-ups

and how to start-up such a bank.

The essence of the financing is “risk capital” and this has historically been the domain of venture capital firms, which have not flourished in our financial environment. Consequently, entrepreneurs in Pakistan have relied on self-generated and borrowed funds, which are not the most efficient method of financing start-ups nor are they necessarily sustainable, especially if the financing comes from an “informal” source.

In general, there are multiple sources of financing available in

1. This chapter has been contributed by Bashir Ahmad Khan.

2. In the case of a tech firm the other critical component is technology, which can be provided as a substitute for capital.

theory: personal savings, credit cards, lines of equity, mortgage loans, friends and family, government grants, asset based loans, factoring, commercial loans, venture capital, IPOs, strategic investors, angel investors, etc. However, in this paper it is highlighted that a combination of equity financing from angel investors working through government supported venture capital funds is probably the best scenario for Pakistan. This can be supported by commercial loans from mutual savings banks, rather than the regular banking system.

Unless there is third party involvement, primarily the academic community, then even those institutions willing to provide financing, hedge their positions by avoiding undue credit risk. Therefore, this Note will stress the critical importance of the involvement of academia in assisting start-ups. In other words, the academic community, and especially business schools, will have to develop and adopt an alternative pedagogical paradigm. The days of “off-the-shelf” business programs are over. One only has to look at the changes in business education in our neighbors, India and China, to see the importance of this.

Finally, it should be noted that the size of the seed capital is an important determinant of whether we are trying to attract angel

investors or venture capitalists. By and large, evidence from the United States³ suggests that angel investors are willing to look at small investments, preferably within a specific geographical vicinity, with a relatively long-term investment time (5-7 years), and a strong emphasis on personality of the entrepreneur for making the investment. Venture capitalists are more likely to take a more hands on interest in the start-up, with stronger due diligence, but a shorter investment time frame. However, they are willing to look at a wider geographical spread of firms. Interestingly, both types of investors prefer equity to debt.

This chapter is divided as follows: a brief overview of banking practices in Pakistan, including the role of non-bank financial institutions; a look at the creation of STEDEC in 1987 to fill the gap created by the absence of a venture capital firm; an examination of the nexus between academia, entrepreneurs, and financial institutions which has been at the heart of the success of Silicon Valley in the United States; a look at the legal constraints facing start-up banks in Pakistan; and, several potential models of financing start-ups, one of which was developed by the author in 2010 and is being considered for implementation internationally.

2. Pakistan's Experience with Risk Capital

Pakistani commercial banks have historically avoided lending to start-ups or even to small businesses because the lending has been asset-based rather than cash flow based. Even today, when the banking system has evolved and become much more sophisticated, banks continue to insist on physical assets as security, and typically these assets should have a market value approximately 1.3 times the value of the loan.⁴ The author was on the Board of Directors of one of Pakistan's major banks for five years and this practice of valuation is widespread and commonplace. Such security is obviously not possible for a start-up to provide, nor indeed are personal guarantees from owners which banks invariably demand.

The State Bank of Pakistan Prudential Regulations also restrict the ability of a commercial bank to provide risk capital because the regulator has a duty to prevent banks from absorbing any undue credit risk and at the same time the commercial banks cannot afford to lose the value of any equity capital due to the adherence to the Basel Capital Adequacy Laws. Hence, minimum capital requirements (MCR) prevent banks from undertaking activities which may erode the capital base due to the high credit risk.

Since regular commercial banks are reluctant to lend to start-ups on the basis of an idea or a series of projected cash flows, many start-ups have relied on equity capital from friends and relatives to set up their businesses and where possible sustained growth through profit retention. The irony of this situation is that Pakistani banks regularly indulge in the activity of “name lending” which means that the security for the loan is the “name” of a well-established business house, which is an equally risky practice. The banks regularly continue to give loans on this basis even when the “names” default because it has negative implications for bank profitability and asset quality.

This is a highly inefficient source of financing: there are major

issues with sustainability, viability, and even with the nature of financing. In interviews with entrepreneurs, the author has discovered that many entrepreneurs are uncertain whether the financing can be labeled as equity or debt. This obviously impacts on the financial viability of the project. The argument that the loan could be utilized in better ways is actually critical to the premise of setting up new types of banks to provide risk capital.

In the 1960s, the Government of Pakistan recognized the need for specific forms of financing to support specific types of economic activity and created a series of non-bank financial institutions, called the Development Finance Institutions (DFIs). These DFIs supported economic activities in different sectors, such as industry and agriculture, as well as across different organizational forms, such as public or private sector. However, none of these DFIs was specifically tasked to engage with start-up ventures; simply to support private or public concerns.

This lack of engagement by converting a DFI into lending for start-ups was a missed opportunity. This is because unlike conventional commercial banks, the DFIs had a term structure of interest rates which favored low-cost, long-term lending. In other words, their liabilities were essentially long-term and concessional funding, often from multi-lateral agencies. Therefore, their assets could be supported over equally long tenors at low rates. In theory, this would have been ideal financing for start-ups since the borrowing cost was low and the tenor of loans was long; in practice, the multiple structure of interest rates distorted the term structure.

The idea of industry, sector, or client-specific lending by specialized institutions has been an integral part of Pakistan's financial environment, and it should not be forgotten that this era was marked by relatively high growth rates averaging eight percent per annum. Hence, it has come to be known as the

3. F. Wainwright and A. Groening (2005), “Note on Angel Investing”, Center for Private Equity and Entrepreneurship, Tuck School of Business, Dartmouth College. Although dated, this is a very useful paper to examine financing options.

4. Banks in Pakistan are heavily geared towards making asset-backed loans because of the regular default of even well-known parties. Surprisingly, they continue their lending because despite defaults, the banks are aware of the borrowers' capacity to repay.

'decade of development'. The DFIs ended up lending to established businesses and the opportunity to finance start-ups was lost. In the author's view, one reason for this was the lack of

involvement of academic and/or research institutions in this nexus of financing institutions and growth firms. This is especially important for tech firms.

3. STEDEC

The Science and Technology Development Corporation of Pakistan (STEDEC) was created in 1987 with the specific purpose of providing venture capital to young entrepreneurs with a technology focus. However, due to bureaucratic anomalies the organization had failed to give a single venture capital loan to a start-up company. By 2010, the organization had been renamed as STEDEC Technology Commercialization Company of Pakistan with the mission of "facilitating commercialization of indigenous research products, processes and technologies and to assist all public R&D institutions". Interestingly, most entrepreneurs, especially in the tech sector, did not even know of its existence.

STEDEC continues to exist in a different form, but it is apparent from the records that mandate has not been fulfilled. Again, it is the author's contention that bureaucratic hurdles aside, the

biggest problem facing a firm from approaching STEDEC is the absence of a proper business plan explaining the concept, product, and market, as well as financial projections. In fact, this gap reflects the cost of non-involvement of the academic community.

A nexus of STEDEC, with Government of Pakistan financing, potential venture capitalists, entrepreneurs, and the academic community could have worked, because the academic community would have provided the skills and know-how to the entrepreneurs on the development of a realistic business plan. This would have acted as de-facto due diligence for the financier, and the plan would have had to be taken seriously. However, the absence of strong industry-academic linkages at the time, thwarted this option.

4. The Nexus

Silicon Valley is famous for the close relationship between entrepreneurs, academia, and financial institutions. The academic community encourages entrepreneurship through incubators, supports it in an advisory capacity (or even financially) through the start-up phase and then due to its credibility creates openings to venture capital firms and invites angel investors to provide the necessary financial support.

Risk capital is an integral part of the financial architecture of developed countries and of the emerging markets such as China and India. The Indian Institutes of Technology and Indian Institutes of Management have been instrumental in providing the skills set and know-how to develop an entire generation of entrepreneurs especially in the technology sector. This point cannot be emphasized enough. In our South Asian context, the implicit guarantees that a start-up will not fail due to the lack of financial support, can only be provided by a third party. Only then will a financial institution take the project seriously and consider providing risk capital.

One reason for this financial conservatism is that existing financial institutions have been badly affected by the quality of their loan portfolios. This is true of both private sector and public sector institutes. On average about 80 percent of outstanding loans (past due) are owned by only 15 percent of the borrowers in Pakistan. Sovereign guarantees related to purchase of the goods and services produced by such companies at predetermined prices may place a major financial burden on the government, in case of inadequate demand within the domestic economy, or in the case of an unpredictable increase in the prices of pass through items. Similarly, loss making public sector enterprises can cause hemorrhaging of the public exchequer. In cases where financing the continuing losses of public sector companies or payment of dues to private sector companies by the government ensuing from sovereign guarantees is done by government borrowing from banks, the resulting crowding out of credit availability for the private sector can have adverse consequences for the economic growth.

Recognition of this anomaly and its harmful effects on growth has come in various ways. Academic institutions such as the Lahore University of Management Sciences (LUMS) and FAST have created incubators and helped start-ups by providing both expertise and some limited initial seed capital. The Information Technology University (ITU) is a step beyond incubation. It is actually training the human capital that can be absorbed in existing technology based firms as well as preparing the more adventurous to venture into start-ups. These activities need to be replicated across the country for some simple reasons, but universities are not financial institutions.

First, Pakistan has moved from an agricultural to a services economy, bypassing the conventional manufacturing which many countries have developed in their transition from low to middle income status. In this transition, Pakistan is suffering from two major problems. First, a rapid addition to the workforce of young people, who are graduates but functionally disparate from the needs of the economy. This adds to unemployment and underemployment. The country needs a minimum of three million jobs a year, but at an annual official growth rate of approximately 4 percent these jobs will not be generated.

Even if we accept the fact that the economy of Pakistan is not recorded properly and there are many jobs in the services sector, these jobs (many in the lower paid retail sector) do not provide the value addition necessary for sustained growth nor for future job creation. Pakistan has to move up the value chain and since the manufacturing sector lacks both the proper governance at the boardroom level and the human capital at the factory floor level, it is towards the tech sector that we must devote our attention.

With regards to the former, regardless of the fact that over 600 companies are listed on the new National Stock Exchange, Pakistani corporations in some cases continue to behave like family firms. This is not conducive to creating an environment which encourages the growth of risk capital.

5. World Economic Forum, The Global Competitiveness report, 2015-16.

It is common knowledge that most Pakistani businessmen are well known for concentrating decision-making control in their own hands. In fact, Pakistan performs badly on the Global Competitiveness Indices published annually⁵ in terms of control of decision-making. Indeed the country scored poorly on all 12 pillars of Global Competitiveness, and in the area of concentration it was very weak.

However, when interviewing the CEOs of family firms, it becomes obvious that their desire for control is partially based on a lack of faith in the technical and managerial ability of the employees, including junior management i.e. human capital. The result is that poor governance in the boardroom permeates through the organization and is reflected in poor governance on the “factory floor”. This exacerbates the need to concentrate and the family orientation of our businesses.

5. A New Paradigm

It is obvious that the changing nature of markets and the existing banking structures are in conflict. Indeed, financial technology (fintech) indicates that financial services don't just have to reinvent themselves by adopting new technology; they have to transform themselves by co-existing with new forms of payments systems, distribution systems, investment schemes, etc. Additionally, we need to look at the alternative to financing, namely for the technology itself to be provided to the start-up.⁶ Therefore, we have to think of a new paradigm when it comes to the setting up of a bank for start-up companies.

There are new pressures on the way in which financial institutions provide financing as well as the direction of financing to tech companies. Increasingly, we see a focus from western countries and multilateral donors for financial institutions in emerging markets to provide seed capital to female entrepreneurs. This is not just a whim. There is a global phenomenon, and Pakistan is also part of this trend, for women to start up businesses both for purely economic reasons and also because they have carved out a niche in certain sectors which adds to the value chain. The fashion industry in Pakistan is one such example. For every brand name, there are ten women entrepreneurs who have captured part of the domestic value chain and managed to convert it into a more sustainable and substantial business opportunity, especially by focusing on exports. Such female entrepreneurs require financing and other support in the critical initial stages of a start-up.⁷

The Grameen Bank model in Bangladesh, although intended to alleviate poverty, provides evidence of the effectiveness of women who are financially empowered to make economically useful choices while providing a superior credit risk for lenders. There is no reason why the extension of this model to formal start-ups cannot succeed without the appropriate financial and informational infrastructure being provided as a part of policy.

Young Pakistani entrepreneurs as well as technology-related human capital has performed very well abroad. Our youth is being hired by Microsoft, Apple and Cisco and is at the forefront of launching start-ups. While this is an admirable achievement, it is also reflective of the fact that the brain drain of the past must be reversed and the same young innovators and entrepreneurs

Therefore, it is critical for Pakistan to focus on technology driven companies which provide value addition in terms of the country's export earnings (the country's overseas remittances of approximately USD13 billion are higher than the value of its exports). By becoming part of this value chain, these firms will provide employment to our growing population, of whom 60 percent are below the age of 25 years. Finally, by taking this leap, we will generate secondary impacts across the country in terms of new knowledge-based infrastructure. The advantage of this approach is that knowledge needs not to be concentrated in a few cities but can cut across geographical boundaries permitting a more equitable development strategy. Thus, the need to finance start-ups, new business ventures and entrepreneurs with solid business plans, is critical for the future of this country, especially when those start-ups are in a dynamic technology-intensive environment.

must be given support to develop their ideas, establish their operations, and implement their plans in this country.

Additionally, any new financial institution must have a strong commitment towards corporate social responsibility (CSR). Modern investors assume there is an implicit contract with financial institutions regarding the institution's commitment to providing accurate and timely information as well as acting ethically.⁸ The latter can include a formal contract towards CSR or innovative business techniques which are part of the “green revolution”. For instance, the financial institution can explicitly commit itself to financing ventures with a strong commitment to environmentally friendly services and products only.

Legally, it would be difficult for commercial banks to do any more than provide e-banking services, although some like Standard Chartered and Askari Bank, provide them with considerable efficiency. However, both these banks invested billions of rupees in upgrading their information technology architecture; not just to provide better business to customer services, but also to provide superior in-house data flows which permitted improved risk management and operational effectiveness. Nonetheless, the role of commercial banks remains that of financing existing businesses, with a proven track record, and ensuring that growth sectors are not neglecting in credit allocation.

Consequently, we have to think out-of-the-box for new solutions. That is the creation of financial institutions or funds that fulfill our requirements for providing both seed capital and more importantly subsequent financial sustainability for start-ups. The first option is an existing concept. The other two options are new ideas for Pakistan, which have substance and have been utilized in one form or the other elsewhere, and could be referred to as start-up banks or Business Support Funds (BSFs) for start-ups. These options use combinations of debt and equity financing, or hybrid preferred stock, to provide financing options. Such options are important due to the nature of financing that venture capitalists or angel investors are willing to provide, and matching the financing with needs of the users, that is both start-ups and their sustainability, in the critical first phase of establishment and growth.

6. Interview with tech entrepreneur Jameel Gauhar, CEO of Kualitatem. Jameel has launched successful start-ups in Pakistan, the United Kingdom, and the United States. He made this interesting point while emphasizing the lack of proper financial support for start-ups in Pakistan.

7. The informal system of financing in many developing countries is testimony to the economic power and the viability of financing female entrepreneurs.

8. Ironically, the term angel investments is also applied to describe investments in firms which undertake business in ethically sound areas.

6. Venture Capital Equity Fund (VCEF)

All over the world, especially in the United States, there are private equity funds focusing on angel investments. Angel investments frequently outperform mainstream investments through regular funds. This is not surprising given the simplistic financial adage that the “higher the risk, the higher the return”. For our purpose, the fund may be a conventional mutual fund or a *modaraba* (an Islamic equity fund).

A conventional fund may be launched by any bank provided an independent asset management company is created as per the rules and regulations of the State Bank of Pakistan and the Companies Ordinance, 1984, as well as subsequent rules governing the creation of and operation of asset management companies.

The asset management company is typically registered as a private limited company which is wholly owned by an existing commercial bank. Its capital base is provided by the sponsoring bank and then sustained by raising funds from the general public through certificates. Mutual funds are subject to regulation from the Securities and Exchange Corporation of Pakistan as non-bank financial institutions.

The management of the fund can choose investments in different markets according to the conditions placed on fund managers. Most funds in Pakistan tend to be balanced funds, including both fixed income securities and equities. Investors can place floors and ceilings on the amounts invested in any one form of financial instrument or any market.

However, since most asset management companies have multiple funds, there is no reason why a fund cannot be 100 percent directed at start-ups. By definition, such funds should offer higher returns due to higher risk. There are investors who will be attracted to such angel investments due to the potential returns. Average returns on mutual funds in 2015 were about seven percent, reflecting a market which was bearish. A fund which is focused on angel investments would give returns approaching 20 percent. This is confirmed by the performance of tech company IPOs in international markets.

Therefore, this option involves the engagement with a commercial bank to support a mutual fund with seed capital, and with an explicit investment strategy in start-ups. This raises a critical issue, namely that the start-up may fail or that many new ventures are sold off by the entrepreneur within a relatively short period of time. This problem can be resolved in several ways.

First, the Government of Pakistan can play a role and provide support by preserving the capital of the fund. The law does not technically permit capital guarantees for principal amounts; however, capital preservation is permitted under the existing guidelines. Such a sweetener would prove attractive to investors. This would require the company to enlist government guarantees since a parent commercial bank would find it difficult to demonstrate a loss-making venture to its shareholders. The author's personal experience of AGMs is that the average shareholder in Pakistan is more concerned about the downside than of the upside potential of investments. This is partly because most shareholders are ill-informed and also because listed Pakistani companies tend to be closely held.

Alternatively, the asset management company could be registered as a *modaraba*, under the *Modaraba Rules, 1993*. While operating as the equity fund, investors in *modarabas* should technically not seek either principal guarantees or principal preservation since a *modaraba* is an Islamic form of financing and operates on a profit and loss basis. Given the current interest in Islamic financing, a *modaraba* may be very attractive to potential investors, especially if launched specifically to support start-ups. The parent company can use this as an opportunity to attract a whole new market of investors: those who do not want fixed returns and are willing to take risks for higher returns.

If managed properly, there is no reason why the *modaraba* should not continue to operate provided it makes profits. However, mutual funds and *modarabas* are instruments of financing used by conventional asset management companies. Even when they were set up, they were frequently used in leasing activities, which implied asset-backing although the key is to provide risk-capital, that is, investments which are secured against projected cash flows.

Two possibilities are presented below to rethink the entire basis of angel and/or venture capital investments (see sections seven and eight below). In principle, the equity fund is no different to some of the financing provided by private equity funds abroad. However, it has a specific purpose and a specific market. The market has been defined as start-ups as well as entrepreneurs who are planning start-ups, and the range of activities includes financial planning, business plans, due diligence, preparation for seeking financing, eventually leading to an IPO. All of this must be done in the context of the country's laws and the country's investors, especially the investor psychology towards risk capital.

7. Pakistan Mutual Savings Bank

Past work by the author⁹ examining the possibility of creating an institution or a fund which would finance risk capital, provides some of the thinking in this section and the next. It should be pointed out, that in fact, the organization considering this option eventually shelved the idea of setting up (registering) such a fund or financial institution in Pakistan for legal and other reasons, or even as an offshore asset management company since its operational activities would be subject to anomalous laws. An additional issue was the need to protect the deposits and preserve the capital base. However, the concept is being

reconsidered by a group of investors who are examining launching such an activity in London, using the umbrella of an existing British bank.

An alternative option being considered is the creation of a mutual savings bank. A mutual bank is essentially a bank in which the depositors are also the owners. The concept is very common in the US financial system because it was dominated by unit banks i.e. banks with single branches. These banks took deposits and made loans but had no shareholders.¹⁰ However,

9. The author chaired a Committee to create a Business Support Fund for small businesses and start-ups with the condition that the financing be provided on an Islamic basis, which means that it is compliant with Islamic law. Some of the ideas presented in Section 7 and Section 8 emanate from that work, which has not been published nor shared publicly prior to the writing of this concept paper.

10. The Garn-St. Germain Act.

various financial crises in the United States created a negative reaction to such banks, which were typically functioning under state charters. The pressure was eventually brought to bear upon them to become part of the Federal Reserve System, which provided liquidity, but also subjected them to greater scrutiny.¹¹

The definition of a mutual bank is that it will take deposits and make loans but the owners are the depositors. Therefore, some form of shareholding rights will be created on a pro rata basis. However, to ensure that liquidity in the form of loans is available, there will be conditions placed on inter-related party transactions. This will free up a substantial part of the asset base to provide small loans to new businesses. In fact, given the nature of the distinction between venture capitalists and angel investors, a mutual bank, by its very nature, would be an organization that exists legally regardless of changes in the deposit base. Hence, we could consider a Pakistan Mutual Savings Bank (PMSB) Limited, in which the depositors (investors) are venture capitalists.

PMSB would have to have the support of the government. Currently, State Bank of Pakistan regulations are directed, rightly so, towards reducing systemic risk, by forcing mergers and cleaning up balance sheets. One result is that the Prudential Regulations, which are subject to constant revision, mandate a minimum capital requirement of PKR one billion. This capital has to be in the form of equity, although for capital adequacy purposes, preferred shares, as well as convertible debentures are permitted in the estimation of risk-adjusted capital as per the rules of the Basel I, II, and III, agreements.

While American mutual savings banks have received negative press, this is largely as a result of their structure and the lack of state-level regulatory intervention. We can avoid this in Pakistan. The PMSB would come under the aegis of the State Bank of Pakistan Prudential regulations and its corporate activities would also be regulated by the Securities and Exchange Commission of Pakistan. The Code of Corporate Governance was originally intended to cover all publicly listed and private financial institutions and that would also cover the local mutual savings banks. Some changes would be required.

First, raising PKR one billion as seed capital from investors who know that the bank will be targeting a market niche which requires risk capital, will create issues in recruiting potential investors (depositors) since most people are used to and inclined towards stability of returns on their deposits, or at the very least, a guaranteed principal. Pakistan does not have deposit insurance, but the failure of a billion rupee bank is not to be contemplated due to repercussions on the entire financial system. During the last ten years, the State Bank of Pakistan has encouraged or forced mergers between a number of local banks, primarily to ensure that they remained well capitalized and would not suffer from the type of catastrophic outcome which the American Savings and Loans Associations did in the 1980s and the mortgage lenders did in the more recent financial crisis. This was due to moral hazard created by deposit insurance on downside risk on deposits and risky positions taken in unconventional markets, such as futures and options.

Second, the Prudential Regulations will have to be modified to accommodate a savings institution which, by definition, will have a risky asset base since it will lend to start-ups. This means that the probability of default will be commensurately higher but PMSB cannot succumb to the adverse selection problem and

start pricing loans at market rates because this would be self-defeating. What is needed, is the ability of the bank to provide loans at affordable rates following due diligence performed both by the bank and academic institutions after a concrete business plan has been approved.

Hence, the concept of the incubation is being taken one step higher. The academic institutions will not only help entrepreneurs develop ideas but will foster these ideas and transform them into workable models that can be presented to a financial institution for funding. The security for the financial institution is the implicit third party due diligence performed by the academic community.

Third, there is no longer a separation of ownership between the depositors and the managers. Rather than major investors being represented on the board, it will be depositors. They may be given certificates in lieu of shares, with each certificate reflecting the depositors' share of the total liability and corresponding voting rights which would impact on the size and quality of the asset side of the balance sheet. It will be very difficult in such an organization to fulfill the State Bank's requirements of arms-length transactions, since the depositors are also the owners and can also be the borrowers. However, PMSB can be mandated to create a board with a 30-40 percent requirement of Independent Directors, primarily representing venture capitalists and academia. This will define the academic-financial-start-up nexus discussed earlier. In other words, universities should play an active role in the new mutual savings banks through properly constituting boards ensuring that a substantial part of deposits are channeled to the start-ups rather than revolved back to the depositors.

The returns to investors (depositors) in PMSB will be floating. However, it is necessary to encourage lending, and therefore, there must be a cap on the lending rates. It is not possible to return to the days of the DFIs. However, the Government of Pakistan can play a role in two ways. First, a sinking fund could be created to ensure capital preservation for investors. Second, incentives on capital retention are essential. Therefore, schemes must be introduced, such as tax exemptions, permitting angel investors to benefit from an expansion in their other commercial activities in return for providing seed money for the PMSB. This may be a way forward.

Last, amongst the angel investors, academic institutions themselves should be encouraged to become mutual shareholders. Instead of simply providing seed money, this would allow the parties which know the entrepreneur best to continue in the sustained financing and direction of the venture. Most start-ups, especially in the tech industry, tend to get dissolved, and this facet of their behavior has to be built into financial projections.

The government may also have to take an equity stake itself in a public-private partnership to kick start the process. However, with successful start-ups, PMSB can take-off. The start-ups could eventually be converted into IPOs and investors would benefit not only through profit sharing but through premiums on company valuation. This option is essentially a part credit and part equity model, using specialized financial institutions. Therefore, we are talking about the issuance of debt in a form which would permit the investor to be compensated for low spreads by participating in the profitability of the start-up, for instance through preference stocks (shares).

11. The Garn-St. Germain Act.

8. Islamic Venture Capital

The third option is an Islamic Venture Capital Fund to be launched by an asset management company owned by any commercial bank in Pakistan which is also engaged in Islamic banking. While conventional, certain unique options can be introduced, such as a switch from a balanced to a pure equity fund which provides investors with the opportunity to place their money directly in the start-up. In other words, rather than behave as a mutual fund whereby investors would buy units in a fund which invests in start-ups, investors will have the opportunity to determine exactly which start-ups to support through direct equity, which is normally the case with angel investors or even venture capitalists. However, the unique feature of the fund would be the use of time-restricted equity.

The concept of time-restricted equity is not novel. The Companies Ordinance, 1984 and the amendments to financial rules permitting Islamic financing, provided for the use of equity funds as well as debt instruments called Term Finance Certificates. Both of these have been used extensively. However, one instrument which has not been used is the Participation Term Certificate (PTC), which is permissible, but for various reasons has not caught the public's imagination. The PTC is essentially time restricted equity. It would be an ideal instrument for financing start-ups.

A new bank or an asset management company could be set up, which invests by taking time-restricted positions in start-ups. Equity by definition is perpetual; but the PTCs would have tenors varying from one to 10 years and investors could choose the

tenor based on their individual or institutional portfolio structures and risk appetites. This would give tremendous financial flexibility as well as the potential for high returns. There is an incentive for investors to have the option to invest directly in a chosen start-up rather than pool their funds and be governed by the risk management decisions of the financial institutions. The author worked on a model of such a concept named Business Support Fund (BSF), with the idea of supporting start-ups and also the critical financial period of post start-up when operations and market conditions place a premium on liquidity.

The BSF was entirely equity based. Investors were issued PTCs in lieu of shares. And unlike conventional investments in a mutual fund directed at start-ups, investors were given the option to invest directly in chosen start-ups. The Fund was professionally managed, with a capital base which would be replenished from the profits of businesses as well as from third party sources. The third party would also receive PTCs and would have rights towards financial auditing, evaluation, monitoring, and regulation. In other words, the BSF was a model with multi-phased PTCs.

The model was not implemented in Pakistan, but it is being evaluated for implementation in Europe, which has historical experience of mutual savings banks, institutional support for start-ups, interest in unconventional financing schemes, as well as the academic-financial-technological nexus which is critical for any sustained financing option.

9. Conclusions

Start-up Banks can play a key role in unleashing the potential for enterprise and innovation amongst the hitherto largely excluded sections of society: the youth, women and minorities. Inclusion of these strata of society into knowledge intensive sectors of entrepreneurship could play a key role in promoting equitable development. Such a process could also help place Pakistan on a new trajectory of innovation based, export led and thereby sustained economic growth.

Six features of this proposed institutional mechanism can be identified. First, there is no doubt that the country is in critical need of financing for start-ups, especially in the technology sector, in order to keep pace with developments in the rest of the world. While reliance of start-up financing on individuals is common all over the world, Pakistan must make the transition to institutional financing. Investment in this sector creates a value chain which generates employment and brings Pakistan to the forefront of cutting edge technology and thinking which will be at a premium over the next decade. In simple terms, Pakistan should look at the technology sector with its related linkages to provide the necessary boost to economic growth which manufacturing has largely failed to do.

Second, start-ups and the sustainability of start-ups require financing and the conventional financing of commercial banks in Pakistan, which is heavily oriented towards asset-based lending, is not ideal for risk capital. This requires a new paradigm: a shift in the way we finance start-ups. This concept paper has tried to demonstrate that multiple options exist, but these will largely come as a result of the initiative of the private sector. However, support from the government of Pakistan will be required at different levels, from regulatory amendments to

investment in the equity base to match private investment. Therefore, this will be a public-private partnership.

Third, existing funds can be transformed into providing venture capital or angel investments but this will require a strategic rethink by the asset management companies, since the latter have constraints in terms of the floors and ceilings on portfolio mix. Consequently, several alternative options have also been proposed, namely a mutual bank, and the use of multi-phased PTCs to support a BSF.

Fourth, once the operational and administrative aspects of such financing have been finalized, a clear mission statement can be adopted, which focuses attention on the type of firms that are to be supported. Basically, the goal is to maximize support for those start-ups which integrate or establish a value chain which will permit sustained economic growth in a very competitive global environment. The success of young Pakistanis abroad should be emulated at home.

Fifth, all major universities should be encouraged to create incubation centers and then expand them into a proper nexus involving financial institutions, since this nexus is at the heart of providing credibility to business plans. Entrepreneurs and those who have launched start-ups globally are adamant that the key to success is financing, technology, and advice. The financing and technology (as a substitute for financing) comes from the venture capitalist or angel investor; the advice comes from the academic institutions which are linked to this paradigm

Last, this concept paper is a starting point for further discussion involving experts from the field of finance and academia, as well

as entrepreneurs and innovators. Although the idea of entrepreneurship has started to be taken seriously, with the establishment of acceleration programs by tech and business incubators

like Plan9 at the Punjab Information Technology Board (PITB) as well as the LUMS Centre for Entrepreneurship, financial viability and sustainability of startups still remains a problem area.

REFERENCES

- Wainwright F. & Groeninger V. (2005). Note on Angel Investing. *Center for Private Equity and Entrepreneurship*. Hannover: Tuck School of Business, Dartmouth College.
- World Economic Forum. (2016). *The Global Competitiveness Report (2015-16)*.

CHAPTER

5

Climate Change, Sustainable Development and Resilience

CHAPTER 5

Climate Change, Sustainable Development and Resilience¹

1. The Specific Aspects of Vulnerability to Climate Change and the Four Dimensions of Sustainable Development in Pakistan

1.1. Climate Change and Growth Instability.

Pakistan's economy is more vulnerable to the adverse effects of climate change than most other countries of the world. Pakistan stands today at 5th highest in the ranking of countries affected by climate change in Germanwatch's 2016 Global Climate Risk Index Report. In the long term Climate Risk Index, Pakistan is ranked 8th highest for the period 1995-2014.²

The main reason for the high degree of vulnerability to climate change is that Pakistan's economy is critically dependent on agriculture, with over 50 percent of the labour force either directly or indirectly employed in this sector.³ Agriculture provides raw material for the textile industry which is Pakistan's largest industry as well as the main source of export earnings. Agriculture based products account for 76 percent of Pakistan's exports.⁴ Thus, the performance of agriculture not only affects

1. This chapter has been contributed by Akmal Hussain.

2. Sönke Kreft, David Eckstein, Lukas Dorsch & Livia Fischer, Global Climate Risk Index 2016, Germanwatch e.V., Bonn, 2015.

3. According to the Economic Survey of Pakistan (2015-16), the agriculture sector employs 42.3 percent of Pakistan's labour force. However, a large number of people employed in the industrial sector, specifically in the textiles and agro-processing industries, also indirectly depend upon the agriculture sector.

4. Estimated from data available in the Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 2015.

the livelihoods of the majority of the population, but is a key factor in determining overall GDP growth as well as Balance of Payments stability. Agriculture growth in Pakistan is dependent on the monsoons, and it is precisely the monsoon rains, whose variability with respect to timing and volume, has increased due to global warming. Consequently, climate change is adversely affecting both the rate and stability of economic growth.

The effect of the increased variability of the monsoons is accentuated by the growing water deficit being faced by farmers. Over the years, as much as one ton of salt per acre is being deposited on cultivable soils. Hence the farmer is obliged to flood the farm land with water to leech the salts before planting. Thus the water requirement per acre has increased at a time when due to climate change, water availability has declined to less than 1100 cubic meters per person per year now, compared to 5,000 cubic meters per person per year in 1951.⁵ The resultant water deficit faced by farmers makes them more dependent on adequate monsoon rains falling at the right time and in the right quantity, even in the irrigated areas. Under these circumstances, the instability of crop sector output is being accentuated by the increased variability in the timing and volume of rainfall during the monsoons.

1.2. Climate Change and the Tendency for Increasing Rural Inequality.

An important aspect of the increased instability of economic growth associated with climate change is its impact on rural poverty and inequality. In Pakistan, variability of the monsoons and increased frequency of floods and droughts, have resulted in an increase in the amplitude and frequency of fluctuations in crop sector output. Thus, both the number and intensity of bad harvests has increased. This means that marginal farmers, who are barely able to meet their family food requirements from their produced output, are pushed into a food deficit situation following a poor food harvest. They are consequently obliged to buy grain in the market often by borrowing money. The resulting indebtedness means that in many cases, these small farmers are unable to have enough investable surplus to buy seed, fertilizer and water the following year and face the prospect of getting pushed out of crop production altogether. Thus, the small farmers are more vulnerable to climate change effects as opposed to the large farmers, who have a financial cushion to face a bad harvest. Accordingly, the increased instability of crop sector growth within the existing agrarian structure has created a tendency for increased inequality and rural poverty. (For a detailed discussion of a small farmer based growth strategy to address this problem, see Chapter 2).

1.3. Climate Change Shocks and the Cost of Adaptation.

Climate change has not only increased the instability of the monsoons and thereby of economic growth, but has also increased the intensity and frequency of extreme climatic events. This has made Pakistan's economy and society vulnerable to climate related shocks resulting in large human and economic losses. For example, in 2010, floods of unprece-

dent magnitude resulted in nearly 3,000 deaths and affected more than 20 million people. Out of 121 districts of Pakistan, 81 were impacted by these floods and the total economic losses were estimated at PPP USD 25.32 billion.⁶

According to the 2007 Report of the Inter-Governmental Panel on Climate Change (IPCC),⁷ over the next two to three decades the rate of snowmelt of the Himalayan glaciers is expected to increase rapidly. This will result in increased river flows initially and a significant decline in river flows subsequently. In the absence of substantially increased storage capacity, this could result in more frequent and more intense floods combined with droughts. In this context, economic vulnerability of Pakistan in terms of the cost of adaptation to climate change has been estimated in a GOP study in 2011. Between 2010 to 2050, the study estimates the average annual adaptation cost to climate change at an average annual amount of USD 10.71 billion (at 2010 prices).⁸ (For a more detailed discussion on the issue of storage capacity, see the chapter 6).

1.4. Climate Change and Food Shortages.

Rising average temperatures in Pakistan are expected to have a direct effect on yields of food grain crops. According to the IPCC Report 2003, due to the heat sensitivity of grain seeds being used in South Asia, an increase of 2.5 degree centigrade in average temperatures is projected to reduce grain crop yields by as much as 30 percent. In the case of Pakistan specifically, UNDP's Climate Change Country Profile for Pakistan shows that the average annual temperature is projected to increase to 2.1 degrees Centigrade by the 2030s, and to 3.7 degrees Centigrade by the 2060s. These projections appear plausible in view of the fact that the average annual temperature in Pakistan has already increased by 0.35 degrees centigrade since 1960.⁹ Given the slow growth of foreign exchange earnings within the existing export structure, a large food deficit in Pakistan could place a severe stress on the capacity to import food. There is therefore a danger of food shortages in the years ahead. This indicates the urgent importance of three sets of policy initiatives:

- (i) Development of heat resistant varieties of food grains and an institutional environment to facilitate widespread adoption of these new seeds.
- (ii) Building up a food import emergency fund within the state bank foreign exchange reserves.
- (iii) The organizational capacity building and the development of institutions to manage a food crisis if and when it occurs. This includes constructing fibre glass silos in every tehsil for storage of emergency food supplies to be released in case of a food crisis. Research on famines by Professor Amartya Sen has shown that a famine can occur even when there is no overall food supply shortage. This can happen in a situation where there are localized supply shortages and transportation from food surplus areas is too slow to handle the local shortage or where the local poor population does not have the

5. Pakistan Vision 2025, One Nation – One Vision, Planning Commission, Ministry of Planning, Development and Reform, Government of Pakistan, 2015, page 18.

6. Sven Harmeling, Boris Schinke, Charlotte Haberstroh & Sönke Kreft, Global Climate Risk Index 2012, Germanwatch e.V., Bonn, 2012.

7. R. K. Pachauri and A. Reisinger (eds.), IPCC Fourth Assessment Report, IPCC, Geneva, 2007.

8. National Economic and Environmental Development Study, Draft, Ministry of Environment, Government of Pakistan, Islamabad, 2011.

9. McSweeney, C., New, M. & Lizcano, G. 2010. UNDP Climate Change Country Profiles: Pakistan. Available: <http://country-profiles.geog.ox.ac.uk/> [Accessed 20 October 2016].

McSweeney, C., New, M., Lizcano, G. & Lu, X. 2010. The UNDP Climate Change Country Profiles Improving the Accessibility of Observed and Projected Climate Information for Studies of Climate Change in Developing Countries. Bulletin of the American Meteorological Society, 91, 157-166.

purchasing power to buy food even when it is available in the market. It is therefore necessary to not only establish food silos in every tehsil, but to have procedures in place to release food supplies and to entitle the local population to access it during a crisis.

It may be worth considering that if these organizational and institutional mechanisms had been in place in Tharparkar, the food crisis there would not have occurred in 2015 and 2016.

1.5. The Imperative of Institutional Development and Organizational Capacity Building.

Adaptation to the economic and social effects of climate change will require the development of new institutions as well as organizational capacity building. The required institutions include rules and procedures for early warning systems of climate related disasters and quick post disaster response for relief, followed by efficient reconstruction. For effective relief and rehabilitation, the institutional structure of national disaster management would require procedures for linking up the operational structure of the NDMA with community organizations at the local, district, provincial and national levels.

Organizational capacity building will require building the capacity for social mobilization, communications and management skills at every level of the organizational structure of disaster management. At the same time, minimizing the impact of floods will require building not only large, medium and small storage dams but also community based construction of water reservoirs in the flood plains of rivers which could store water during floods and can be used for irrigation purposes during droughts.

1.6. The Four Dimensions of Sustainable Development in Pakistan.

On the basis of the discussion in this section and in chapter 2, it can be suggested that sustainable development in Pakistan would require four dimensions of inclusive development to be built into policy making and public action at the macro as well as the micro levels and at every tier of government: federal, provincial, district and local government. These four dimensions are:

- (i) Inter-personal equity to ensure growth sustainability

through inclusion of the middle classes and the poor in the process of investment, productivity increase and innovation.

- (ii) Systematic inclusion of women, the youth and those social groups that are discriminated against in society. Systematic inclusion means changing the institutional structure so as to give opportunities to these strata of society to engage in the process of investment, economic growth and upward mobility through access over: (a) productive resources, (b) quality healthcare and quality education, (c) vocational training, (d) equitable access over markets, (e) protection of violence against their person, (f) justice, (g) political representation in the legislature, (h) participation in the process of governance and the decisions that affect their social, economic and environmental conditions at every tier of government.

The inclusion of women, youth and social groups that face discrimination in the process of economic and social development is necessary not only for sustainable development but is an imperative of human dignity and equality of opportunity. These are key elements in the core values within which democracy as well as the process of development of a country are embedded.

- (iii) Inter-regional equity for a regionally broad based growth process so that the innovation and enterprise of people in the backward districts can be brought into play to achieve full utilization of the creative potential of the people.
- (iv) Protection of the environment; minimizing the adverse impact of climate related disasters on human society and physical infrastructure; and building resilience so that communities and regions impacted by climate change and associated extreme events can resist and recover from them quickly and efficiently.

Pakistan faces the challenge of inequality and an environmental crisis which together constitute a major threat not only to the sustainability of economic growth, but also the stability of society and state. Therefore it is necessary for policy making to integrate these four dimensions of sustainable development.

2. Existing Policy Framework and Policy Gaps

In the recent years, the policy makers in Pakistan have begun to recognize the significance of the problem of climate change and the associated dangers for the country. Pakistan is among the few countries of the world which have a full-fledged ministry of climate change. Since the 18th Amendment, climate change related policy making and implementation has been in the domain of provinces, but there are official policy documents such as the Pakistan Vision 2025 and the National Climate Change Policy (NCCP) 2012 on which there is a national consensus.

2.1. Pakistan Vision 2025 and Climate Change.

The Vision 2025 document recognizes that climate change is a

major threat to the economy and society of Pakistan. The document emphasizes that future planning and policy making in Pakistan must take into account the hazards associated with climate change. One of the key objectives (i.e. Pillar II) of the Vision 2025 is achieving sustained, indigenous and inclusive growth: "Pakistan Vision 2025 seeks to revive and sustain the growth momentum consistent with environmental limits and equity considerations."¹⁰ Pillar IV of the Vision 2025 recognizes that in order to ensure sustainable economic growth and development, "sufficient, reliable, clean and cost-effective availability of energy, water and food" is essential. The goals related to the climate change under pillar IV include:¹¹

- Designing water, food, and energy security policies and

10. Pakistan Vision 2025, One Nation – One Vision, Executive Summary, Planning Commission, Ministry of Planning, Development and Reform, Government of Pakistan, 2015, page 8.

11. Pakistan Vision 2025, One Nation – One Vision, Planning Commission, Ministry of Planning, Development and Reform, Government of Pakistan, 2015, page 59.

plans of the country with specific reference to the serious challenges posed by climate change.

- Explicitly recognizing the relevant risks and associated economic and social costs and implementation of well-defined mitigation and adaptation strategies/measures.
- Promoting long term sustainability, conservation and protection of natural resources.
- Other notable goals of the Vision 2025 related to energy, water and food security which are to be achieved by the year 2025 include: completing two large hydel projects i.e. Diamer-Bhasha and Dasu dams; tapping Pakistan's potential for alternative energy; increasing the water storage capacity in the country which is currently 30 days, to 45 days by 2018 and to 90 days by 2025; Modernizing and diversifying the agriculture sector in order to make it more efficient so that both an increase in the incomes of farmers and a sustainable adequacy of food supply for the country's population can be achieved; developing institutional mechanisms to protect the most food-insecure segments of population during times of food shortage.

• 2.2. National Climate Change Policy.

- The National Climate Change Policy of Pakistan 2012 (NCCP) can be considered as the most important policy document in the country related to climate change. The NCCP was designed and launched after extensive consultations with the provinces and other stakeholders while provinces have the responsibility of developing mechanisms for the implementation of the NCCP. The stated goal of the NCCP is to “ensure that climate change is mainstreamed in economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate resilient development”.¹²
- The NCCP document recognizes the severity of the problem of climate change for Pakistan and the urgency required to deal with this issue. It specifies policies regarding adaptation to climate change in key sectors such as water resources, agriculture and livestock, health, forestry, biodiversity and ecosystems. It has been stressed that “the more immediate and pressing task” for Pakistan is to prepare for adaptation to climate change in order to ensure water, food and energy security of the country and to minimize the impact of natural disasters on human life, health and property. Policy measures in the areas of disaster preparedness, capacity building, institutional strengthening, technology transfer and international cooperation are specified in this regard. The document also stipulates mitigation policies in sectors such as energy, energy efficiency and conservation, transport, town planning, industries and agriculture and livestock.

• 2.3. Pakistan Climate Change Act 2016.

- The Ministry of Climate Change of Pakistan has completed the draft of the bill titled “Pakistan Climate Change Act, 2016” which is expected to obtain the Parliament's approval soon. The aim of this bill is “to address the effects of climate change and meet Pakistan's obligations under international conventions related to climate change” [such as United Nations

Framework Convention on Climate Change (UNFCCC) 1992; Kyoto Protocol to the UNFCCC 1997; the Paris Agreement 2015 (COP-21) as well as other agreements].

- The key features of this Act include:
 - i. Establishment of Pakistan Climate Change Council whose chairperson would be the Prime Minister. The Council would include relevant federal ministers; Chief Ministers of provinces; Ministers in charge of the subject of environment in the provinces; Chief Secretaries of AJK and Gilgit Baltistan; and other stakeholders and technical experts related to climate change.¹³
 - ii. Establishment of the Pakistan Climate Change Authority which will be responsible for the implementation of National Climate Change Policy as well as for meeting the obligations of the country under various international conventions related to climate change. The Climate Change Council would appoint the Chairperson of Climate Change Authority and assign specific duties.
 - iii. Establishment of Pakistan Climate Change Fund which will be managed by the Climate Change Authority. “Money from the Fund will be utilized to meet expenses of both the Authority and the Fund itself and for financial assistance to suitable adaptation and mitigation projects and measures designed inter-alia to combat the adverse effects of climate change.”
- **2.4. Policy Gaps and Recommendations.**
 - The Pakistan Vision 2025 emphasizes that future planning and policy making in the country must take into consideration the challenges posed by climate change and the associated risks. The NCCP presents a comprehensive set of policies vis-à-vis adaptation and mitigation measures in various sectors which are essential to cope with the problem of climate change. But there are also some important gaps in the NCCP related to both policy and implementation mechanisms. These can be specified as follows:
 - (i) Since the 18th Amendment of the Constitution of Pakistan and the resultant devolution of powers to the provinces, policymaking and implementation vis-à-vis climate change is in the domain of provinces. But there is a problem of unclear and imprecise division of responsibilities between the federal government and the provincial governments. Implementation of climate change related policies is impeded by the fact that the roles of different tiers of government are not clearly defined. For example, it is the responsibility of the federal government to devise and implement new policies in line with the international treaties, but majority of the departments through which these policies can be implemented are under the control of the provincial governments. The UNDP's Climate Public Expenditure and Institutional Review (CPEIR) Report of 2015 notes that this unclear division of responsibilities makes the coordination for compliance to international agreements difficult.¹³
 - (ii) There is a lack of institutional mechanisms for inter-provincial co-ordination on a continuous basis during the process of implementation of specific environmental related

12. National Climate Change Policy, Ministry of Climate Change, Government of Pakistan, September 2012, page 1.

13. Pakistan Climate Public Expenditure and Institutional Review, United Nations Development Programme Pakistan, 2015, page 39.

- projects with cross provincial implications. Organizational capacity building is also required within provincial governments with respect to the identification of projects; technology choice for clean energy technologies where such choices are available; and building health and safety standards into supply chains of production in the agriculture, industrial and energy sectors.
- (iii) Capacity building at the provincial government level is also required to be able to negotiate and establish contracts that adequately protect Pakistan's interests in the case of complex technology transfer agreements with Multinational Corporations, governments of advanced industrial countries and multi-lateral agencies.
 - (iv) There is a need for organizational capacity building and institutional mechanisms for research, development, dissemination and adoption of technologies for both adaptation and resilience. For example, development and adoption of new seed varieties of grain which are heat resistant and adapted to saline soils; development of new high yielding cotton seeds through genetic engineering which meet international health and safety standards; innovative waste treatment plants and bio-gas plants to produce fertilizer as well as clean energy; miniaturization of solar cells for efficient production of solar energy; development of information technology for e-governance and monitoring of projects for clean technology adoption, agriculture extension services, health and education

3. Resilience

As discussed above, Pakistan is amongst those countries of the world which are most vulnerable to the negative effects of climate change. There is an increased amplitude and frequency of fluctuations in crop production and in the frequency and intensity of extreme climatic events (droughts, floods, torrential rains, heat waves etc.). These phenomena pose new challenges for the cities and urban areas. In order to reduce the degree of loss and suffering from extreme climatic events and to increase the speed of recovery from such events, Pakistan needs to adapt to the changing climate and build and strengthen its resilience, both in rural and urban areas.

3.1. Resilience and the Post-2015 Development Agenda.

The United Nations Office for Disaster and Risk Reduction (UNISDR) defines resilience as “the ability of a system, community or society exposed to hazards, to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.”¹⁴ The United Nations Global Assessment Report on Disaster Risk Reduction 2015 identifies three key elements of resilience against natural disasters: (1) Effective early warning systems; (2) Preparedness for response; and (3) Building back better.

Resilience is one of the most prominent themes in the post-2015 development agenda which the majority of the countries of the world have agreed upon. For example, the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) states that countries must “strengthen resilience” through (i) “Understanding disaster risk”; (ii) “Strengthening disaster risk governance to manage disaster risk”; (iii) “Investing in disaster risk reduction for resilience”; and (iv) “Enhancing disaster preparedness for effective response and to ‘Build Back Better’ in recovery, rehabilitation and reconstruction”.¹⁵ Similarly, it is clearly stated in the Paris Agreement on Climate Change 2015 (COP-21) that there must be an “establishment of global goals on enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change”. It is further stated that building the “resilience of socioeconomic and ecological systems, including through economic diversification and sustainable management of natural resources” must be ensured along with

“the adequate financing of climate-resilient development”.¹⁶

The Sustainable Development Goals (SDGs), agreed upon in 2015, recognize that a vision of sustainable development and poverty eradication by 2030 can only be achieved through building resilience which will help in protecting the gains achieved from development and in reducing the risk of future shocks. The following targets in the 17 SDGs emphasize the importance of resilience:¹⁷

Target 1.5. By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

Target 2.4. By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality.

Target 9.1. Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

Target 9.a. Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and Small Island Developing States.

Target 11.b. By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.

Target 11.c. Support least developed countries, including

14. 2009 UNISDR Terminology on Disaster Risk Reduction, United Nations International Strategy for Disaster Reduction, Geneva, May 2009, page 24.

15. Sendai Framework for Disaster Risk Reduction 2015-2030, United Nations Office for Disaster Risk Reduction, Geneva, Switzerland, 2015.

16. Adoption of the Paris Agreement, Conference of the Parties, Twenty-First Session, Paris, 30 November to 11 December 2015, United Nations Framework Convention on Climate Change (UNFCCC), Bonn, Germany, 2015. Available from: <https://unfccc.int/resource/docs/2015/cop21/eng/I09r01.pdf>

17. Sustainable Development Goals, Division for Sustainable Development, Department of Economic and Social Affairs, United Nations, New York, 2015. Available from: <https://sustainabledevelopment.un.org/index.php?menu=1300>

through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

Target 13.1. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

3.2. Human Development and Resilience.

The 2014 UNDP Human Development Report (HDR) emphasizes the key importance of human development in strengthening the resilience of communities and of countries. The available evidence analyzed in the report shows that the communities which have easier access to quality education and healthcare and have some form of social protection are not only more resilient to the negative effects of climate change but are also

more resilient to the negative effects of economic shocks and crises.¹⁸

The HDR 2014 argues that the more healthy and educated the people within a community, the more its ability and capacity to cope with extreme climatic events. The extent and degree of loss from extreme climatic events will be lesser in such communities and they will also recover faster from the damage. On the basis of this evidence, the report argues that a universal access to basic services, especially quality healthcare and education, is greatly helpful in building resilience in communities. It has also been argued that various forms of inequality (income, health and education) increase the vulnerability of communities to climate change and reduce resilience.

4. Climate Change and Regional Cooperation in South Asia¹⁹

Pakistan's ecosystem is part of the integrated ecology of South Asia, with shared mountains in the North, the major rivers flowing down in the West, the oceans to the South and precipitation from the annual monsoons. Therefore, a significant element of adaptation and mitigation measures requires cooperation between the states of South Asia. In this section, we will briefly indicate the nature of inter-dependence between the states of South Asia arising from its integrated ecology and the impact of climate change on societies and economies of South Asia. This inter-dependence creates the imperative of cooperation in facing the challenges ahead.

4.1. The Nature of Inter-Dependence and the Challenges of Climate Change.

South Asia's heavy reliance on the monsoons, its critical dependence on agriculture and persistent mass poverty makes this region highly vulnerable to climate change.

Monsoons, Glacial Melt and Vulnerability of the Region. What has been suggested in section 1 in the national context of Pakistan is also true to a varying extent for other countries of South Asia: the increased variability in the timing and magnitude of precipitation during the monsoons could increase the instability of agriculture production and add to the burden of the poor. The northern mountains, containing the region's glaciers, source of its rivers and the key to its climate and economy, are sensitive to temperature increases. Srivastava provides evidence to show that some Himalayan glaciers are melting faster than the global average.²⁰ At the same time there is more recent evidence to suggest that the westward shift of snowfall during the monsoon period, combined with landslides in the upper reaches of the mountains may be increasing the apparent size of some of the major glaciers in the Karakorum. The disequilibrium in the size of the glaciers combined with rising temperatures could have a major impact on the stability of water

supplies and thereby on the economies and societies of South Asia.

Rising Temperatures and Food Security in South Asia. Rising average temperatures could have a direct effect on grain crop yields because the seeds being used in much of South Asia are sensitive to heat. According to the IPCC, a 2.5 degree Centigrade increase in temperature could reduce crop yields by as much as 30 percent.²¹ The increased year to year variability of monsoon rains combined with the direct heat effects on grain crop yields could have a major adverse impact on grain crop production and accentuate the problem of food security in South Asia.²²

Rising Sea Levels, Salinization of Coastal Agriculture Plains and Internal Migration in South Asia. Rising sea levels, associated with global warming, are expected to adversely affect agriculture in low elevation coastal zones (LE CZ) along the coasts of South Asia. S.C. Rajan has estimated that climate change could force 125 million people, whose livelihood depends on agriculture in coastal plains, to leave their habitat and migrate to other places in South Asia.²³ At the same time, climate change induced decrease of freshwater availability is expected to affect over one billion people in South Asia, according to R.K. Pachauri.²⁴

Climate Change and Health. Climate change is also likely to have a significant impact on health and change the vector of disease. The increased frequency and intensity of heat waves could increase the incidence of heat strokes, cardiovascular, cerebrovascular and respiratory diseases, according to Hales, Edward and Kovats.²⁵ At the same time, increased frequency of floods could increase the incidence of diarrhea, dysentery, cholera, typhoid and rodent borne diseases. Longer summers, frequent floods and stagnant water bodies in homes and neighbourhoods have already caused diseases such as dengue.

18. United Nations Development Programme, Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience, United Nations, New York, 2014, pages 83-110. Available from <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>

19. This section is based on an earlier article by Akmal Hussain, titled: Climate Change and Cooperation, Published in the Express Tribune, Monday, 22 August, 2011.

20. Leena Srivastava, The Environmental Challenges in South Asia: Regional Cooperation for Adaptation Strategies, Chapter in Akmal Hussain and Muchkund Dubey (eds.), Democracy, Sustainable Development and Peace: New Perspectives on South Asia, Oxford University Press, New Delhi, 2014, pages 334-374.

21. R. K. Pachauri and A. Reisinger (eds.), IPCC Fourth Assessment Report, IPCC, Geneva, 2007.

22. F. Giorgi and X. Bi, Updated Regional Precipitation and Temperature Changes for the 21st Century from Ensembles of Recent AOGCM Simulations, Geophysical Research Letters, Volume 32, 2005.

23. S.C. Rajan, Climate Migrants in South Asia: Estimates and Solutions – A Report by Greenpeace, Greenpeace India Society, March 2008.

24. R.K. Pachauri, The Impact of Global Warming and Imperative of Mitigation, Chapter in Akmal Hussain and Muchkund Dubey (eds.), Democracy, Sustainable Development and Peace: New Perspectives on South Asia, Oxford University Press, New Delhi, 2014, page 600.

25. S. Hales, S. Edwards and R.S. Kovats, Impacts on Health of Climate Extremes, Chapter 5 in A.J. McMichael, D.H. Campbell-Lendrum, C.F. Corvalan, K.L. Ebi, A. Githelo, J.D. Scheraga, A. Woodward (eds.), Climate Change and Human Health: Risks and Responses, World Health Organization, Geneva, Switzerland, 2003.

It is clear that management of population dislocation, natural disasters, instability of water supplies and food shortages resulting from climate change will require a high degree of inter-state cooperation in South Asia. The nation states of South Asia share the integrated life support system of this region. They also share the risks posed to it by climate change. Therefore cooperation, not conflict, is the key to build a better future for the people of the countries of South Asia.

4.2. Forms of South Asian Cooperation to Manage the Adverse Effects of Climate Change.

- **Managing Internal Migration.** The projected internal migration of people across district, provincial (state) and possibly even national boundaries following climate related loss of livelihoods and natural disasters requires cooperation at each of these levels to develop administrative procedures and international protocols for the orderly management of such migrations, the resettlement, rehabilitation and livelihood provision of climate refugees within national boundaries.
- **Cooperation for Research, Development and Dissemination of Heat and Saline Resistant Varieties of Food Grain.** Prevention and management of food shortages related with climate change require cross-country cooperation in South Asia through institutional mechanisms for the development of heat resistant and saline resistant seed varieties of food grains, availability of these seeds in the region once developed and information sharing of best practices for seed adoption.
- **Establishing a South Asian Food Security Fund (FSF).** To create the financial basis of meeting a major food deficit in one or more countries of South Asia, a South Asian Food Security Fund could be established. This could be done on the basis of foreign exchange contributions by South Asian countries, multilateral agencies and international donor agencies. Clear procedures should be specified regarding the quick disbursement of these funds in case of a crisis to enable either intra South Asian imports of food, or from the international market.
- **Storage and Transportation of Buffer Stocks of Food.** To avoid localized food shortages, such as the one that occurred in Tharparkar, particularly in a situation where food supplies cannot be transported in time, it is necessary to establish emergency food stocks in every tehsil of Pakistan. This requires setting up modern fibre glass silos and maintaining them with fresh food grain stocks. Clear institutional mechanisms should also be put into place by the government for quick release of food rations to the local population. The work of Amartya Sen has shown that sometimes a famine can occur when the local population does not have the entitlement in terms of purchasing power to buy food in the market during a crisis. Therefore, the disbursement procedure of food stocks should permit free distribution of food rations to the local population during a food crisis.
- **Cooperation for Sharing of Best Practices to Achieve Higher Water Use Efficiencies.** As climate related reduction of water flows in the rivers of South Asia occurs and the water availability per person per year declines, it is necessary to introduce measures for improving water use efficiency, i.e. GDP generated per unit of water used. These measures include developing innovative organizational forms and agriculture practices to give farmers access to the following services: laser leveling; drip irrigation; tunnel farming for growing high value added off season vegetables; cultivation of fruits and flowers for exports; establishing supply chains of exportable fruits and vegetables from production, grading, washing to packaging and traceability protocols to meet international health, safety and quality standards.
- **Cooperation between Upper and Lower Riparian States to Reduce the Potential for Inter-State Tensions and Improve Adaptation to Climate Change.** A case in point is the Indus Basin which is shared by Pakistan and India. In the face of climate change related prospects of floods combined with reduced river flows, cooperation is required between the two countries for integrated resource management in the Indus Basin; joint watershed management; improved efficiency of irrigation; preventing pollution of the surface irrigation system as well as ground water reservoirs; monitoring of river flows; and advance warning systems for floods and droughts.
- **The Indus Basin Treaty and Cooperation to Face Climate Change.** The Indus Basin Treaty between India and Pakistan has stood the test of time so far in water sharing over the last five decades. Compliance of the Treaty has been maintained even during the three wars between Pakistan and India that have occurred since the Treaty came into force. Now in the face of climate change, the activation of some of the unused provisions of the treaty as well as additional protocols, need to be established for adaptation to climate change in a peaceful and mutually beneficial manner.
- **At the same time, an institutional and organizational strengthening of the Indus Waters Commission is required to address the challenges of the sustainable and peaceful use of Indus waters.** This involves strengthening the dispute resolution capabilities by adding more Assistant Commissioners and professional staff with the requisite expertise. The mediating role of the Commission could be augmented through an institutionalized involvement of high quality independent experts charged with the task of transboundary environmental assessments, identification of sustainable development policy options and co-operative water management under the terms of the Indus Basin Waters Treaty.²⁶
- **The need for additional co-operation procedures is indicated by the fact that the Treaty has no provision on the response by Pakistan and India to reduced river flows associated with climate change.** Similarly, the Treaty does not adequately provide for addressing the problem of water quality and the degradation of both surface and ground water for many uses.²⁷ Therefore, additional protocols need to be agreed upon between India and Pakistan to prevent the deposit of industrial waste, toxic chemicals, heavy metals and other pollutants into the surface and ground water irrigation systems. Protocols also need to be established for sharing the ground water supply as well as data on shared ground water resources.

26. Connecting the Drops, Report of the Indus Basin Working Group, Stimson Centre, ORF and SDPI, 2013, page 50

27. Ibid.

- Strengthening and Operationalizing Articles VI and VII of the Indus Basin Treaty (IBT). Article VI of the IBT stipulates exchange of data and Article VII suggests “Future Cooperation” between India and Pakistan on water sharing issues. Both these Articles need to be operationalized now as both countries together face the adverse effects of climate change. This is particularly necessary since new technologies have emerged for non-intrusive real-time data collection and exchange of data regarding river flows and water quality: these include, satellite based remote sensing and GIS mapping, joint monitoring stations and telemetry platforms.²⁸
- Data produced through these technologies could be used

for setting up computer based modelling of joint hydrological and climate scenarios for the Indus Basin. Such data and models of the Indus Basin could then enable evidence based policy decisions by the two countries for optimal siting, design, construction and operation of water storage facilities and hydroelectric power projects; flood control and environmental flows. Articles VI and VII related to the exchange of data and cooperation, lay the legal basis for India and Pakistan to introduce new technologies that have emerged since the signing of the Treaty in the early 1960s. Thus, not only would water related tensions be precluded, but both countries can cooperate for mutual benefits.

REFERENCES

Giorgi, F. & Bi, X. (2005). Updated Regional Precipitation and Temperature Changes for the 21st Century from Ensembles of Recent AOGCM Simulations. *Geophysical Research Letters*, 32.

Hales, S., Edwards, S. & Kovats, R.S. (2003). Impacts on Health of Climate Extremes. A.J. McMichael, D.H. Campbell-Lendrum, C.F. Corvalan, K.L. Ebi, A. Githelo, J.D. Scheraga, & A. Woodward (Eds.). *Climate Change and Human Health: Risks and Responses*. Geneva: World Health Organization.

Harmeling, S., Schinke, B., Haberstroh, C., & Kreft, S. (2012). *Global Climate Risk Index 2012*. Bonn: Germanwatch e.V.

Kreft, S., Eckstein, D., Dorsch, L., & Fischer, L. (2015). *Global Climate Risk Index 2016*. Bonn: Germanwatch e.V.

McSweeney, C., New, M., & Lizcano, G. (2010). *UNDP Climate Change Country Profiles: Pakistan*. Retrieved from <http://country-profiles.geog.ox.ac.uk/> on 20 October 2016.

McSweeney, C., New, M., Lizcano, G. & Lu, X. (2010). The UNDP Climate Change Country Profiles Improving the Accessibility of Observed and Projected Climate Information for Studies of Climate Change in Developing Countries. *Bulletin of the American Meteorological Society*, 91, 157-166.

Pachauri, R. K. & Reisinger, A. (Eds.). (2007). *IPCC Fourth Assessment Report*. Geneva: IPCC.

Pachauri, R. K. (2014). The Impact of Global Warming and Imperative of Mitigation. In A. Hussain & M. Dubey (Eds.). *Democracy, Sustainable Development and Peace: New Perspectives on South Asia* (p.600). New Delhi: Oxford University Press.

Srivastava, L. (2014). The Environmental Challenges in South Asia: Regional Cooperation for Adaptation Strategies. In A. Hussain & M. Dubey (Eds.). *Democracy, Sustainable Development and Peace: New Perspectives on South Asia* (334 - 337). New Delhi: Oxford University Press.

UNDP. (2014). *Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience* (pp. 83-110). Retrieved from <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>

28. Ibid

CHAPTER

6

A Policy Framework for Addressing Pakistan's Water Crisis

CHAPTER 6

A Policy Framework for Addressing Pakistan's Water Crisis¹

1. Pakistan's Water Challenges

1.1. Irrigation Infrastructure, Agriculture and the Economy.

Agriculture is the single largest sector of Pakistan's economy. Even though agriculture accounts for about 20 percent of GDP, the importance of agriculture lies in the fact that it still employs 42.3 percent of the labour force directly and about eight percent indirectly (in industries like textiles and food processing, which use raw materials produced in the agriculture sector). Thus, over 50 percent of the labour force is either directly or indirectly dependent for their employment on agriculture and this sector accounts for more than 75 percent of export earnings.² Textiles

comprise about 57 percent, whereas the food products comprise 19.2 percent of total Pakistani exports and both are largely dependent on agriculture. Over the last decade, agriculture grew at an average annual rate of 4.5 percent. However, in recent years not only has agriculture growth slowed down but also the amplitude of fluctuations in agriculture output have increased. The arable agricultural resource base of Pakistan is about 22 million ha (Mha), which is 27 percent of the total land area. About 17 Mha are irrigated and about 5 Mha rain-fed. The irrigated area produces almost 90 percent of all agricultural production. The irrigated land is usually located in

1. This chapter has been contributed by Khalid Mohtadullah.

2. Pakistan Economic Survey 2015-16, Ministry of Finance, Government of Pakistan, 2016.

the river basins of the Indus. Though there are irrigated lands in the northwest, northeast to southwest parts of the country, the proportion is small as compared to that in the northern areas. So the efficiency of irrigation and effective maintenance of the physical irrigation infrastructure is crucial for Pakistan's economy and society.

1.2. The Imperative of Efficient Management of Water Resources.

Despite the heavy investments in irrigation and water resources development over the years, Pakistan still faces a series of major challenges in managing its water resources. There are clear signs of widespread water scarcity in many areas including some of the highly productive agricultural areas. This coupled with projected population growth will make Pakistan a water scarce nation by 2035 when supplies are expected to drop below 1000 cubic meters (m³) per person per year. As there are very few feasible options to develop significant additional sources of water, the increasing demand for food and fiber for the increasing population will have to come from significant improvements in the performance of the existing irrigation system. At the same time, there is mounting evidence of large-scale degradation of the resource base. Arable land already suffers from some of the world's worst irrigated related problems including water-logging and soil salinity with some 20 million tons of salt accumulating in the Indus basin every year. Furthermore, surface and groundwater resources are being polluted due to increasing use of agro-chemicals and discharge of urban and industrial waste into surface water bodies.

Pakistan is considered as one of the most water stressed countries in the world. Rainfall is meagre and ranges from 500 mm in parts of the Punjab to about 100 mm per annum in the western parts of the country and does not provide a reliable basis for rain-fed agriculture. Massive investments contributed to the development of Indus Basin Irrigation System (IBIS), a significant engineering achievement and one of the world's largest contiguous irrigation systems. The IBIS is comprised of 45 canal commands receiving average annual diversion of 127 billion cubic meters (Bm³) of water. The IBIS is the major supplier of irrigation water to Punjab and Sindh plains and forms the backbone of agriculture and food production in Pakistan. Currently 17 Mha area within and outside the IBIS or 80 percent of the 22 Mha area under cultivation is irrigated and accounts for about 90 percent of the agricultural production in the country.

1.3. Maintenance, Rehabilitation and Replacement of Irrigation Assets for Sustainable Agriculture.

Pakistan's large water infrastructure base has an estimated replacement cost of about USD 60 billion. Much of this infrastructure is very old and operating beyond their designed life. The services provided by this infrastructure are crucial for sustainable irrigated agriculture and national well-being. However, these services can only be available on a sustainable basis if the structures are well maintained and are replaced in a timely manner on reaching the end of their designed life span. Pakistan benefited immensely from the major water infrastructure built in the Indus Basin. The benefits from Tarbela dam substantially exceeded those which were predicted at the time of construction. Through forward and backward linkages in the economy, the total benefits were probably about twice those of the direct power and irrigation benefits. However, with age, much of the water infrastructure has deteriorated resulting in low performance and huge systems losses. The impact was first felt

on small irrigation systems which began to fall into abandonment. In Balochistan, the expansion of tubewell irrigation due to subsidized electricity accelerated the decline of the ancient karez system (also known as qanats). Later the same thing happened in many canal commands where elements of the vast hydraulic system are now reaching the end of their design lives, and have to be rehabilitated and/or replaced. There is an enormous backlog of deferred repair and maintenance.

These problems stem in part from the very size of the IBIS, a dilapidating infrastructure and operational systems which are difficult to modify as the nature of irrigation demand in the system changes. Water management is based on objectives and operational procedures which are inflexible and unresponsive to current needs for greater water use efficiency and high crop yields. Charges for irrigation water are not enough to meet actual operational and maintenance costs resulting in inadequate expenditures on maintenance. At the same time, because of its low cost to farmers, water is often wasted by them. The collection of irrigation water charges (abiana) in Punjab was 79 percent of the demand which has reduced to little over 40 percent of the demand. In Balochistan, it was 45 percent in 1998-99 and has reduced to only 15 percent of the demand in 2013. The current irrigation water charges in Punjab are a mere PKR 135 per acre per year. Over the last 15 years, no serious effort has been made to meaningfully increase water charges to recover the operation and maintenance costs. This low cost recovery is one of the major reasons for the disastrous deterioration of the irrigation system.

1.4. The Gap between Required and Actual Investments in Water Infrastructure.

At least USD 600 million annually are required for maintenance of the water infrastructure asset which has a replacement cost of about USD 60 billion. A common perception is that the stagnation in canal irrigation command areas is caused by the slowdown in public investments in irrigation. Nevertheless, a large, though inadequate investment has been made. For example the World Bank alone invested around USD 500 million per year in the water sector from 1960 to 1990. Over the last decade there was a sharp decline in public sector irrigation investment with the World Bank investing at a substantially lower level of about USD 20 million per year. Quite apart from the shortfall in expenditure on maintenance there is now an urgent need for fixed capital investment to replace the century old main river barrages which have reached the end of their designed life.

Mindful of the gap between the required and actual investment in irrigation, the government of Pakistan itself has now begun a program of around half a billion dollars for infrastructure improvement in Punjab. The continued state of disrepair of the irrigation system despite these public sector investments suggests that apart from financial inadequacies, there are severe institutional and organizational constraints to translating financial resources into outcomes.

1.5. Decline of Surface Irrigation and the Danger of Food Shortages.

Reduced supplies due to weakening of the surface irrigation system forced farmers to think about alternative well irrigation. Around 1990, it began to replace gravity flow irrigation on a worrisome scale, leaving surface irrigation systems reconfigured and their command areas curtailed. The drivers of this change were of two types. First, management of public irrigation

systems continued to decline in terms of area irrigated, quality of service, maintenance of infrastructure and revenue generation. Second, the groundwater boom muted the pressure to improve canal irrigation management. Farmers found that the canal system was too inflexible and provided water which was either too much, too little or at the wrong time. Groundwater provides a decentralized on-demand source of water and enabled farmers to significantly increase their crop yields and incomes.

The general outcome of this neglect is the continuous worsening of surface irrigation structures and reduction in water availability for agriculture and other needs. The delivery efficiency of IBIS is only 36 percent from canal head to the crop root zone. System losses corresponding to canal supplies ranged from 82 to 84 Bm³, about 64 percent of water delivered to IBIS. In fresh groundwater areas, this induced recharge is captured through the exploitation of groundwater. The lower Indus Basin, however, is largely deprived of usable and recoverable recharge because of underlying saline groundwater. The per capita water availability in Pakistan is expected to reduce to 525 m³ by 2050, if no new storages are built. The water requirements for irrigation in the Indus Basin are estimated at 250 Bm³ in 2025 against the projected availability of 190 Bm³ including full exploitation of groundwater potential. Under this scenario, the water availability for five major crops (wheat, rice, cotton, maize and sugarcane) will reduce by 35 Bm³. This shortfall will increase further during the below average rainfall years and can cause serious food shortages and rising food prices.

1.6. Irrigation and the Problem of Equity.

The IBIS is supply based and does not take into account actual crop water requirements. This system is characterized by low management and operational requirement, which is an advantage with an inherent disadvantage of inflexibility. Water allocations are based on land holding and does not account for soil type, groundwater quality and cropping patterns. The “warabandi” distribution system favors head-enders and discriminate tail-enders, which has serious implications for equity and crop productivity. Within watercourses, tail-enders get 20 percent less water than middle-enders, who in turn get 20 percent less water than head-enders. Similar trends are seen in the productivity levels of head, middle and tail-enders of the same watercourse. Moreover, tail-end farmers face accelerating salinity problems due to the existence of poor quality groundwater.

Under such an environment, the major task for water managers is to provide water in an equitable, predictable and timely manner to those who need it and have a right to it. This task is done less and less satisfactorily due to monopoly, discretion and corruption in the water sector administration. The result is inequitable distribution of water, poor technical performance and a pervasive environment of mistrust and conflict, from the provincial level to the water course. The water bureaucracy has yet to make the vital mental transition from that of builder to that of manager.

1.7. The Imperative of Increasing Water Use Efficiency.

The future food security and economic development of Pakistan depends on how it manages and uses water in agriculture since irrigation will continue to play a key role in the future. There is both an imperative and an opportunity to improve irrigation performance in Pakistan. Despite squeezing water supplies, low efficiency of agricultural water use is a major problem in Pakistan. The overall irrigation efficiency is only 36 percent. The

productivity of water (water use efficiency) in Pakistan is among the lowest in the world. For wheat, for example, it is 0.5 kg/m³ compared to 1.0 kg/m³ in India and 1.5 kg/m³ for California. For maize it is 0.3 kg/m³ whereas in a country like Argentina it is 2.7 kg/m³. Consequently, the economic productivity of water is one tenth of that in California (USD 0.25/m³ in Pakistan compared to USD 2.5/m³ in California). In California, production value of each acre-foot of water is USD 3000 compared to only USD 250 in Pakistan. This shows that there is substantial potential for increasing water use efficiency. Pakistan needs to increase the productivity of existing water resources to recover the true value of this natural resource.

1.8. Water Management and Use of Ground Water Resources.

In the IBIS, systematic deterioration of canal irrigation infrastructure as well as weakening of accountability mechanisms is a cause as well as a result of the rise of tube well irrigation. This has implications not only for direct management of irrigation systems, but also for how water is shared within and across political boundaries. There are two possible solutions: first, the planners and managers of large irrigation projects should find a way to regulate the pace of pump irrigation expansion and the direct and indirect effects it has on surface performance—a task more easily said than done as anyone with experience in South Asia can attest. Or second, they should recognize, predict and adapt to the future impact of unregulated expansion in pump irrigation.

Unlocking value in old and new surface irrigation systems requires reinventing irrigation systems management, which would require integration of canal systems into the groundwater irrigation economy. Consideration of this policy option may have a potential for significant practical change.

Pakistan is the 3rd largest groundwater consumer in the world, accounting for 9 percent of the global withdrawals and 5.2 million ha area under groundwater irrigation (4.6 percent of the global groundwater-fed cropland). Due to the diminishing surface water supplies, reliance on groundwater has reached to 70 percent in many canal water deficient areas. Currently 52 Bm³ groundwater is pumped for irrigation each year with the help of 1.2 million small capacities private tubewells, out of which about 0.8 million are located in Punjab. Due to large imbalance in discharge and recharge, groundwater resources are depleting in large areas making it heavily polluted and expensive to access especially for smallholder farmers.

According to recent estimates, only 13 percent of the tubewells are operated by electric motors whereas the rest 87 percent are run by diesel engines of various capacities. Diesel engines are preferred by farmers because of their low installation and operational costs as compared to electric tubewells. Each year, six billion kWh of electricity and 3.5 billion liters of diesel is used to energize these tubewells. Carbon emissions attributed to this energy use amount to 3.8 million metric tons (MMT) of CO₂ per year, which is 1.2 percent of Pakistan's total carbon emissions. Investments on the private tubewells are of the order of USD 400 million whereas the annual benefits in the form of agricultural production are to the tune of USD 2.5 billion. The private tubewells serve 2.5 million farming families directly or indirectly. On average, every fourth farming family has a tubewell and a large proportion of non-owners purchase groundwater through local, fragmented groundwater markets. Given the decline in the supply of canal irrigation and the temporal flexibility of tubewell

water supply, there has been a sharp increase in the reliance of farmers on it. Groundwater is currently providing more than 60 percent of the total crop water requirements.

Unfortunately, the problem goes beyond quantity. More than 70 percent of the private tubewells pump saline and sodic water, which is creating large scale salinity problems. Pakistan is now home to probably the worst salinity problem in the world. Groundwater is usually used in conjunction with surface water to decrease the salinity of canal irrigation water in an attempt to avoid soil salinization. The conjunctive use of surface water and groundwater is practiced on more than 70 percent of the irrigated farm area. The use of poor quality groundwater for irrigation accentuates the salinization problem and hence constitutes a major threat to the sustainability of irrigated agriculture. Successful irrigation requires successful conjunctive water management.

1.9. Government Initiatives for Improving Water Resource Management.

The Government of Pakistan embarked in the late 1990s on a sweeping reform agenda aimed at improving water resource management and capacity building. This was complemented by large investments for the improvement of irrigation and drainage infrastructure. The reform initiatives included the restructuring of Provincial Irrigation Departments (PID) by establishing autonomous Provincial Irrigation and Drainage Authorities (PIDAs) at

the provincial level, corporate oriented Area Water Boards (AWBs) at the canal level to operate the main and branch canals, and establishing Farmer Organizations (FOs) for the operation and management of the system at distributaries and minor levels. It was a USD 785 million project over six years jointly funded by the government of Pakistan, The World Bank, Asian Development Bank and Japan's JIBC. These were the first major reforms to take place in more than 150 years of surface irrigation management based on current international thinking about participatory irrigation management (PIM) and the need for Integrated Water Resources Management.

Today, after fifteen years, it is generally believed that results have fallen short of goals and that massive challenges remain. The performance of FOs declined over time due to poor relationship between FOs and irrigation department. Farmers are losing faith in the reform process, and there is a danger that the whole effort might fail. This is a finding not dissimilar to results elsewhere in South Asia. While there may be many reasons for the limited success of irrigation management reforms, a fundamental reason is that irrigation management involves wider hydraulic systems which are beyond the control of FOs. This inevitably renders FOs dependent on the state and thwarts their development as independent self-sustaining social organizations without the restructuring of the state irrigation departments. There is a desperate need to modernize the services provided by the Irrigation Department and make it more accountable.

2. Policy Guidelines for Addressing the Water Crisis

2.1. Changing the Policy Paradigm of Water Management: Water as Capital.

Irrigation dominates water use in Pakistan and it is expected to continue as the major user of both surface and groundwater in the future as well. As development proceeds and the population as well as country's economy grows, competition for water resources will become a major concern. Therefore, water will need to be diverted from irrigation to other uses in the economy. Currently, the irrigation system is supply based and little attention is paid to demand management. On the other hand, the viability of irrigated agriculture in the Indus basin is threatened by a multitude of factors, including seepage from unlined canals, inadequate provision of drainage resulting in water logging and soil salinization in irrigated areas, poor on-farm water management practices, insufficient canal water supplies and use of poor quality groundwater for irrigation and lack of robust policies for the management of land and water resources.

It is estimated that to feed the increasing population, 40 percent more food would be required by the year 2025. Decreasing investments in the water sector and shortage of good quality water combined with environmental and ecological threats, points to the complexity of task of improving the availability and efficiency of irrigation water. In order to increase agricultural production and ensure sustainability of irrigated agriculture, the overall strategy should be to think of water as capital and hence develop and at the same time improve the efficiency of "water capital". Revitalizing irrigation in Pakistan requires new thinking and fine-tuning of old ideas to address the changing scenario in Pakistan. Pakistan needs new strategies to enhance input efficiency and maintain and improve the quality of the resource base and to get the irrigation system out of the current crisis.

2.2. The Need for a Comprehensive Plan for Rehabilitation and Management of Irrigation Infrastructure.

Pakistan's water infrastructure is in decay due to a combination of age and neglect but there are no modern asset management plans for its repair and/or replacement. The designated amounts for repair and maintenance of water infrastructure are only five to 10 percent of the required amount. The cumulative effect of neglect on the barrages and head works has left these strategic structures vulnerable to unforeseen damage with enormous consequences. Due to deferred maintenance and lack of rehabilitation, the delivery capacity of canal system is now estimated to be 30 percent lower than the designed capacity. This requires immediate investments to secure these strategic structures to ensure food security of 180 million people. Therefore, Pakistan needs to develop a comprehensive plan for the rehabilitation and management of its water infrastructure. Effective implementation of such a plan once formulated, requires not only the allocation and timely disbursement of required financial resources but also the development of an efficient institutional framework as well as organisational capacity.

2.3. The Imperative of Water Storage in Large Dams.

Currently, Pakistan is storing only 15 percent of its annual river flow, which is far less than required to ensure sustainability of irrigated agriculture. In the past few years, the government has been emphasizing the construction of small dams to provide irrigation facilities to the small scale irrigation sector. The small dams may address the poverty issues in selected villages but would not help in eradicating poverty at large. The envisaged small dams have a storage capacity of anywhere between 1800 to 2000 m³. This may be enough to meet small scale irrigation

and domestic water requirements but cannot be a substitute for large dams. For instance, to store water equivalent to Kalabagh dam would require construction of 750 small dams, and that too will be exclusive of power generation. Therefore, the importance of large dams should not be ignored as they are imperative for sustained national economic growth both from the point of view of food as well as energy security.

2.4. Introducing Rationality and Equity to Water Allocation at the Levels of Canals and Water Courses.

To improve salinity management in the canal command areas where head and tail ends of the same system have varying soil and groundwater qualities, existing water allocation criteria should be revisited. These decisions have to be made at two levels i.e. system level and the watercourse level.

2.4.1. Canal Water Allocation Policy. Canal water allocations should be made considering cropping patterns, groundwater quality and soil salinity levels. For this purpose, existing water allocation criteria where everybody gets equal access to canal water regardless of location along the canal and soil and groundwater quality, have to be abandoned. The canal water supplies should be allocated on variable time basis i.e. less time for the head end farmers and more time for the tail-end farmers. The reduction in the canal water quota of head-end farmers can be accommodated by providing them greater access to groundwater. This is possible given the fact that in the head reaches of the canals, recharge to groundwater is high and quality of groundwater is generally good. Therefore, head reach farmers should be persuaded to allow additional canal water to flow to the tail end of the system where groundwater quality is poor and canal water is of critical importance to sustain crop production and livelihoods of farmers.

2.4.2. Water Course Level, Water Allocation Policy: The Distinction between Head End and Tail End Farms. The alteration in water allocation rules would also require policy interventions regarding cropping patterns and amount of groundwater that can be pumped to maintain acceptable salinity levels. At the watercourse level, farmers located at the tail-end of watercourses of the system should not be allowed to use poor quality groundwater for irrigation. Instead they should be educated to use surface water more wisely to avoid salinity development. The proposed water allocation strategies within a canal system are technically possible but might have social implications as it will not be easy to convince head-end farmers to relinquish their share of surface water. If the head-end farmers are relieved of the economic burden of pumping groundwater by charging water fee equivalent to canal water, their cooperation may be obtained. For this purpose, additional public tubewells would be required at the head reaches of the canal system.

2.4.3. Introducing Equity and Efficiency in Canal Water Distribution. The current rotational irrigation (warabandi) system is based on the principle of equal water allocation for all farmers regardless of their location in the canal system, which discriminates against tail-end farmers. In general, head-end farmers have higher crop yields than farmers located at the tail-end of the canal system. The causes of higher crop productivity and farm incomes of head-end farmers are varied and complex, but the more proximate reasons are fresh groundwater availability and fewer canal water turns missed. Farmers having access to groundwater attain 50 to 100 percent higher crop yields as compared to those entirely dependent on canal water. When

canal water supplies are inadequate/non-available, the availability of fresh groundwater is a boon to head-end farmers. However, tail-end farmers are underprivileged due to poor groundwater quality.

2.4.4. Groundwater Usage Policy, Subsidies and Equity. The peculiarities of Pakistan's socio-ecology demand a multi-dimensional approach for managing groundwater. In the Balochistan province, for example, the policy of providing subsidies on electricity needs to be reviewed. Currently, the annual subsidy on agricultural tubewells is PKR 8.5 billion and is provided to only 2.5 percent of the large farmers who own deep electric tube wells. The majority of small farmers are deprived of this facility, which is creating serious equity concerns in the rural communities.

2.4.5. Groundwater Usage Policy and Cropping Patterns. Policies should also be formulated to restrict expensive groundwater use to only grow high value crops using high efficiency irrigation systems. In the Punjab province, more efforts are needed to review existing cropping patterns for areas where hydrological conditions suggest that additional groundwater resources are insufficient to support intensive agriculture. Separate strategies should be developed for large commercial farmers and for small poor farmers who are totally dependent on groundwater for protecting their livelihoods. Cropping patterns should be rationalized on the basis of the country's food requirements and the availability of water resources. More incentives are needed for areas such as Cholistan desert where groundwater resources are not yet tapped.

In view of these considerations a new water allocation framework suited to current socio-economic conditions needs to be developed. This framework should ensure distribution equity and efficiency in water allocations based on gross area on tertiary canal, sensitivity of crop growth stages, water allocations to higher value crops and poor quality groundwater areas, and water allocations to areas where salinity management is a priority.

2.4.6. Canal Water Charges. Existing canal water charges are inconsistent with the economic benefits gained by the farmers. Furthermore, recovery of water charges (abiana) is far lower than its original value. Therefore, an increase in the current abiana rates and improvements in the recovery system are needed to enable Irrigation Departments to improve maintenance of the water infrastructure for increased water supply reliability.

2.4.7. The Enabling Legislation for a New Water Allocation Policy. Changing water allocation laws would require political understanding of the issue and government level interventions for realignment of the roles and responsibilities of public sector organizations. In the existing set up, water user associations should be engaged to start the dialogue process for this new paradigm shift for the management of surface and groundwater resources. The existing Irrigation Act, PIM Act and Groundwater Act need to be reviewed to develop a clear policy for prudent use of various sources of water. As groundwater is managed by farmers, FOs should also be involved in the management of groundwater at the tertiary level. This requires modifying the PIM Act to include groundwater users as members of the WUA/FOs. Also, the issue here is not how FOs are structured but putting in place incentives and support systems to enable FOs to develop into independent and viable entities.

2.5. Flows below Kotri Barrage and the Economic Potential.

Scarcity of water for irrigated agriculture and temporal and spatial variation in flows of the Indus river system demands a careful analysis of the flows that must pass below Kotri Barrage to control sea water intrusion. The pattern of flow below Kotri Barrage is influenced by canal withdrawals at the upstream barrages and storage in the reservoirs. The average flow going below Kotri barrage is about 32 million acre feet, whereas the minimum flow to the sea to check sea water intrusion has been estimated as 10 million acre feet. This means that a storage potential exists for the use of 22 million acre feet of water for irrigation. During the heavy rainfall years, the flow below Kotri can be double than the average years. Therefore, in an average year, achieving half the productivity potential of California, by saving 22 million acre feet of water can yield economic benefits of about USD 40 billion in terms of agriculture production. Of course, the benefits can be increased many fold during the relatively wet years particularly if the productivity of water use in agriculture is enhanced. This requires an immediate settlement of long contentious issue between the provinces.

2.6. On-Farm Ponds for Water Storage, Rainwater Harvesting and Recharging Aquifers.

For efficient use of canal water, tail end farmers should be encouraged to construct on-farm ponds to store canal water and use it through high efficiency irrigation systems to increase water use efficiency. These ponds can also be used for rainwater harvesting. Alternatively, they can use groundwater (provided quality is manageable) for irrigation and use stored canal water for leaching salts to maintain salt balance in the root zone.

In rain-fed areas, many farmers have invested in rainwater harvesting structures for supplemental irrigation and for recharging aquifers. These structures have been built by individuals as well as by local groups and/or communities. These initiatives have helped small farmers to get better yields as compared to earlier time when these structures were not in place. Therefore, supporting these initiatives and helping to sustain them will be crucial to produce more food, increase current levels of water use efficiency and fight poverty.

2.7. Cropping Patterns and Water Demand Management.

Pakistan also needs to focus on demand management. It is time to review whether we should continue to grow rice for export or instead use this water for other crops where the country has a comparative advantage. Restricting rice production could reduce the pressure on the water resources. Adoption of other irrigation water strategies such as alternate wet and dry irrigation (AWADI) used for rice can also help save groundwater. Direct seeded rice requires 23 percent less irrigation water as compared to traditional transplanted rice under Pakistani conditions. Similarly, strategies should be developed to replace sugarcane with low water demanding and high market value crops.

2.8. Water Use Efficiency, Cropping Patterns and Equitable Growth.

Despite acute water shortages, irrigation applications have no relevance to actual crop water requirements. Studies have shown that improved irrigation schedules for wheat and cotton can save up to 40 percent water while producing optimal yields.

2.8.1. Direct Seeded Rice and Water Saving Technologies.

Adoption of irrigation water strategies such as direct seeded rice requires 23 percent less irrigation water as compared to traditional transplanted rice under Pakistani conditions. Using water-saving technologies, such as piped water and pressurized micro-irrigation, to replace flood irrigation are the widely accepted means of promoting sustainable groundwater use. The advantage claimed is that delivering water on-demand to the root-zone of plants can improve application efficiency by saving water lost to evaporation and the seepage associated with other methods. In the Indus Basin, adoption of these irrigation practices could save up to 24 Bm³ of water, which is about 14 percent of the total renewable water available in the Indus basin. This will be a big step forward towards substantial increase in water use efficiency, in terms of GDP generated per acre foot of water used by farmers.

In Pakistan, however, large-scale adoption of pressurized micro-irrigation is limited due to poor financial resources of smallholder farmers. Therefore, a policy change at the government level is needed to increase credit facilities and technical support to farmers. In the absence of such arrangements, improvements in water use efficiency will remain a challenge.

2.8.2. High Value Added Cropping Patterns, Diversification of Agriculture and Exports. There is also a need to develop new cropping patterns to achieve higher value added per unit of water used (Water use efficiency). At the same time, production of dairy and livestock products could considerably increase farm incomes with available water and land resources and substantially increase Pakistan's exports.

2.8.3. The Need for Soil Testing to Increase Productivity of Fertilizer Use. Increasing the value added per unit of water used requires getting access over soil testing facilities to determine the use of appropriate chemical fertilizers.

2.8.4. Bio-Saline Agriculture for Increasing Productivity on Marginal Lands. Presently, the use of saline water is restricted to growing salt resistant crops. Such crops as grasses for fodder, bushes and trees such as eucalyptus have proved successful in providing a reasonable economic return to the farmers of the marginal areas. While this may not have a widespread benefit, there is likely a potential for local improvements in farmer income. Significant progress has been made in the field of bio saline agriculture which provides innovative techniques of managing marginal land and water areas. For marginal areas, development of integrated crop-livestock technological packages to diversify incomes of farmers should be emphasized. Salt-tolerant forage plants are efficient in producing biomass of high nutrient value. Introduction of bio saline agriculture in marginal areas could be a game changer for the livelihood of rural communities living in these areas.

2.9. High Efficiency Irrigation Systems.

For this to happen an institutional and organizational support mechanism needs to be put into place to enable farmers to install High Efficiency Irrigation Systems (HEIS) such as drip and sprinkler irrigation systems; laser based precision land levelling to reduce water wastage on the farm; zero tillage, bed and furrow planting.

The government of Pakistan has started a comprehensive plan to subsidize HEIS for farmers. This program should be enhanced by making them more cost-effective and adaptable to local crops and physical conditions. Involvement of private

sector in this effort can be helpful. In addition, investments would be needed to develop small reservoirs along the irrigation canals to store water in wet seasons which can later be used to augment groundwater supplies. This will help in improving water supply in dry seasons and reduce the burden on groundwater resources.

2.10. Climate Change and the Indus Basin Irrigation System (IBIS).

The success of any changes to the IBIS will also depend on how they can adapt to climate change. The IBIS is heavily dependent on the glaciers of the western Himalayas. Most of the runoff is derived from the melting of seasonally accumulated snow and ice from glaciers. Hence changes in climate or the resulting accumulation of snow and ablation of glaciers in the upper reaches of the river could have serious consequences for the livelihoods not only of those engaged in the agriculture sector but also for the economy as a whole.

Although analysis and the understanding of the linkage of climate, glaciology and runoff is still far from complete and evidences are conflicting, there is a possibility that average flow volumes and the annual variability may increase, the seasonality of flows may alter, and the heightened variability in rainfall patterns will magnify. There is a need to build up the knowledge base of the implications of climate change on the IBIS so that decisions are made on the basis of verifiable measurements.

Pakistan has a history of floods and droughts. The drought of 2001-04 reduced surface water supplies by 26 percent seriously affecting humans and animals whereas the recent floods of 2010-11 were the most devastating in the recent history of this region. It is expected that due to increased variability of monsoon and winter rains and the loss of natural reservoirs caused by glacier melting due to climate change, the inter-annual and intra-annual variability of river flows will increase which may cause serious floods and droughts in future as well.

In order to avoid serious losses, Pakistan needs to work on both

structural and non-structural measures for flood protection and raise storage capacity to cope with the anticipated future droughts.

As non-structural measures, Pakistan needs to enhance forecasting and early warning capacity for floods and droughts which is currently very weak. Restoration of existing wetlands, proper planning of urban development, improving preparedness and relief services and increasing coordination between different provincial and federal departments are some of the measures that can significantly improve Pakistan's capacity to protect and manage droughts and floods in the country.

2.11. Water Sharing and Inter-State Tensions.

In recent years, increasing demand for water for irrigation and electricity generation in Pakistan and India has created perceptions about the distribution and utilization of six rivers in the Indus basin, settled under Indus Water Treaty (IWT) in 1960. There is a strong perception in Pakistan that IWT has given the means to India to cut-off vital irrigation water to Pakistan. As a lower riparian, such a perception obviously leads to serious concern and questioning the fairness of the treaty. For Pakistan to safeguard its rights under the treaty is therefore an important issue. It requires strengthening our capacity in the Indus Waters Commission itself plus facilitating inputs from appropriate think tanks so that we can ably defend our positions in all the forums specified in the IWT.

In order to energize riparian relations, continued dialogue is crucial. Transparency will help in clearing the air and will allow for increased cooperation on the waters, to build ideas of 'water peace' rather than 'water wars'. For this purpose, Pakistan should keep stressing on strengthening monitoring systems, enforcement mechanisms, and specific water allocation provisions for environmental flows, and at the same time safeguard its interest in common aquifers. The latter two are not covered in the IWT and will thus require working out a new workable framework for these elements. (For a more detailed discussion see Chapter 5).

REFERENCES

- Ahmad M D, Turrall H, Masih I, Giordano M, & Masood Z., (2007). Water saving technologies: Myths and realities revealed in Pakistan's rice-wheat systems. Colombo, Sri Lanka: International Water Management Institute. 44p (IWMI Research Report 108).
- Archer, D.R., Forsythe, N., Fowler, H.J., & Shah, S.M. (2010). Sustainability of water resources management in the Indus basin under changing climatic and socio-economic conditions. *Hydrology and Earth System Sciences Discussions*, 7, 1883-1912.
- Government of Pakistan. (2013). *Agricultural statistics of Pakistan*. Islamabad: Ministry of Food, Agriculture and Livestock, Economics Division, Govt. of Pakistan.
- Latif, M. & Ahmad, M. Z. (2009). Groundwater and soil salinity variations in a canal command area in Pakistan. *Irrigation and Drainage*, 58, 456-468.
- Latif, M. (2007). Spatial productivity along a canal irrigation system in Pakistan. *Journal of Irrigation and Drainage*, 56 (5), 509-521.
- Meinzen-Dick, R. (1997). *Groundwater markets in Pakistan: Participation and Productivity* (No. 105). Research Report. Washington D.C.: International Food Policy Research Institute (IFPRI).
- Mohtadullah, K. (2004). *Integrated water resource management in Pakistan*. International Symposium on Community Based Approaches for IWRM. February, 16-17, 2004, UNDP, Islamabad.
- PPSGDP. (2000). *Legal and Regulatory Framework for Punjab Province*. Punjab Private Sector Groundwater Development Project (PPSGDP). Technical Report No. 45. Lahore, Pakistan.
- Prathapar S.A., & Qureshi, A.S. (1999). Modeling the effects of deficit irrigation on soil salinity, depth to water table and transpiration in semi-arid zones with monsoon rains. *International Journal of Water Resources Development*, 15(1-2), 141-159.
- Qureshi, A. S., Masih, I. & Turrall, H. (2006). Comparing water productivities of transplanted and direct seeded rice for Pakistani Punjab. *Journal of Applied Irrigation Science*, 41(1), 47-60.
- Qureshi, A. S., McCornick, P. G., Qadir, M., Aslam, M. (2008). Managing salinity and waterlogging in the Indus Basin of Pakistan. *Agricultural Water Management*, 95, 1-10.
- Qureshi, A.S. (2014). Reducing Carbon Emissions through Improved Irrigation Management: A case study from Pakistan. *Irrigation and Drainage*, 63, 132-138.
- Qureshi, A.S., & Bastiaanssen, W.G.M. (2001). Long-term effects of irrigation water conservation on crop production and environment in semi-arid zones. *ASCE Irrigation and Drainage Engineering*, 127 (6), 331-338.
- Qureshi, A.S., Gill, M.A., & Sarwar, A., (2010). Sustainable groundwater management in Pakistan: Challenges and opportunities. *Irrigation and Drainage*, 59(2), 107-116.
- Shah, T. (2007). The groundwater economy of South-Asia: An assessment of size, significance and socio-ecological impacts. In M. Giordano & K. G. Villholth (Eds). *The agricultural groundwater revolution: Opportunities and threat to development*. CABI Publications. pp. 7-36.
- Shah, T., Debroy, A., Qureshi, A.S., & Wang, J. (2003). Sustaining Asia's Groundwater Boom: An overview of issues and evidence. *Natural Resource Forum*, 27, 130-141.
- USAID. (2009). *Pakistan's Food and Agriculture Systems*. Economic growth office of USAID's bureau of Economic growth. Islamabad, Pakistan. 102 pp. http://pdf.usaid.gov/pdf_docs/PNADO507.pdf
- World Bank. (2005). *Pakistan's Water Economy: Running Dry*. Report No. 34081-PK. Washington DC: World Bank.
- World Bank. (2007). *Punjab groundwater policy—Mission report*. WB-SA-PK-Punjab GW Mission report, June 2007. Retrieved from www.worldbank.org/gwmate
- WWF-Pakistan. (2007). *Pakistan's Water at Risk: Water and Health Related Issues in Pakistan and Key Recommendations*. Retrieved from <http://www.wwfpak.org/pdf/water-report.pdf>.
- Zardar, N. H. & Cordery, I. (2009). Estimating the effectiveness of a rotational irrigation delivery system: A case study from Pakistan. *Irrigation And Drainage*, 59(3), 277-290.

CHAPTER

7

Institutional Constraints in the Utilization of Pakistan's Hydro-Power Potential

CHAPTER 7

Institutional Constraints in the Utilization of Pakistan's Hydro-Power Potential¹

1. The Necessary First Step in Resolving the Water and Power Crisis

Pakistan possesses a hydroelectric potential of 100,000 MW,² the cheapest and cleanest form of energy. Yet we have been short of electricity for decades even with suppressed demand. The great Indus river basin is a vital source of water, about 150 Million Acre Feet (MAF). There is also a large aquifer, yet the country is moving from water stress to water scarcity. Each winter there is shortage of water for agriculture and since 2010, recurrent floods have played havoc and caused death as well as destruction of billions of dollars.

The water and power crises have one major reason. We have built no dams since the last 41 years. The generation mix of hydel/thermal has shifted from about 70:30 in the 1960s to 37:63 at present. The shift in the composition of electricity generation towards thermal sources has not only substantially increased the cost of power generation but has also increased greenhouse gas emissions. Dams provide electricity as well as water storage and flood mitigation. Eminently suitable, very large, large and medium sized water and power sites have been ignored.

1. This chapter has been contributed by Imtiaz Qazilbash.

Parts of this section have been drawn from an earlier paper by Imtiaz Qazilbash which forms part of the World Bank publication titled: Pakistan's Water Economy – Running Dry.

2. Chairman WAPDA Zafar Mahmud.

A strategic intervention for facilitating sustained economic growth is to accelerate the development of hydro power projects

which would generate abundant and clean electricity and at the same time provide storage for irrigation purposes.

2. Evolution of Hydropower Leading to Creation of the Water and Power Development Authority

2.1. A Modest Beginning.

In 1947 there were just a few districts in East and West Pakistan where there was any electricity. In 1959, West Pakistan's total generation capacity was 119 MW (excluding KESC), with 52 MW of hydro power and 69 MW of thermal power generation capacity. In the North West Frontier Province (NWFP, now Khyber Pakhtunkhwa), a hydroelectric power station was established in 1938 at Malakand with a 9.6 MW generation capacity which was later augmented to 20 MW in 1952 along with another 20 MW Dargai hydroelectric power station completed in the same year. Both these power stations are on an irrigation canal of the river Swat. There was also Kurramgarhi power plant (4 MW), 1958. In Punjab there was the 22 MW Rasul hydroelectric power station also on an irrigation canal and a small 1 MW one at Renala. The other main cities and towns had small local thermal power stations. The villages were mostly without electricity. The largest city at that time, Lahore had a small thermal power station at Shahdara. Lahore's power supply was supplemented by import from India from Joginder Nagar hydropower station.

This state of affairs needed change. To develop the country, it had to produce sufficient electrical power capacity as well as the means to transmit and distribute it. West Pakistan had one of the world's largest irrigation systems. There was considerable knowledge of its rivers and the hydroelectric potential. For a long time it was known that by building a dam on the narrow gorge of the river Kabul at Warsak a hydroelectric power station could be built. Work on the construction of the Warsak hydroelectric power project was started in the 1950's and it was commissioned in 1960 to produce 160 MW. It was extended to 240 MW in 1980.

2.2. The Emergence of WAPDA.

Realizing that Pakistan had tremendous hydroelectric potential on the river Indus, its tributaries as well as the other rivers, a vital national endeavour was undertaken. In 1958 was enacted the West Pakistan Water and Power Development Authority, WAPDA, Act for the unified and coordinated development of water resources of West Pakistan.

Although the WAPDA Act was enacted in 1958, it became operational in Lahore on 1st January 1959, when its visionary Chairman Mr. Ghulam Faruque brought with him a small group of talented engineers of the Power Development Section of the PIDC, to form the nucleus of WAPDA.

The work on WAPDA's projects started, before WAPDA came into existence, in the Power Development Section of the Pakistan Industrial Development Corporation, P.I.D.C in Karachi. These projects included:

- Establishment of a 240 MW natural gas power production centre at Piranghaib, Multan.
- Setting up a transmission system forming the grid to interconnect Warsak and Multan power stations with Lahore, Lyallpur (Faisalabad) and the other load centres through 132 KV grid substations and transmission lines between Warsak-

Peshawar-Wah -Rawalpindi -Kharian on the east and from the west Warsak-Daudkhel-Sargodha-Lyallpur (Faisalabad) Lahore, as well as between Multan and Lahore.

- Establishing telecommunications and Control Systems for the upcoming power grid.

2.3. The Years of Spectacular Achievement.

Since WAPDA was established for water-power development, one of its primary tasks was to identify sites and to determine their potential. For this purpose the Planning and Investigations department was set up under a highly competent engineer. In 1959, surveys and investigations were started at dozens of sites, including mostly large and medium ones. Pre feasibilities of a large number of hydroelectric projects were undertaken.

With the signing of Indus Basin Treaty in September 1960, WAPDA embarked on what at that time was the world's largest water sector development project. WAPDA's record in the first eighteen years of its existence upto 1976 was spectacular. It successfully built and commissioned Mangla dam and hydro-electric power station with initial live storage of 5.3 MAF and power production of 800 MW, later raised to 1000 MW, as well as Tarbela dam and hydroelectric power station, with live storage of 9.7 MAF and installed capacity of 3728 MW. Tarbela storage releases started in 1975 and power generation started in April 1977.

WAPDA also built very large link canals, as well as five barrages. It completed large Waterlogging and Salinity Control projects as well as several Surface Water schemes. It successfully completed the small hydroelectric 20 MW power stations on canals in the Punjab, at Chichokimalian, Shadiwal and Nandipur.

WAPDA put up thermal power stations at Multan, Faisalabad, Hyderabad, Kotri, Guddu, Jamshoro, Quetta etc. A great and successful endeavor was constructing a nationwide grid system with 132 kV, 220 kV and also 500 kV transmission lines (the first in Asia) and grid substations stretching from Warsak in the North to Karachi in the south, and from Sialkot in the East to Quetta in the West. For the operation of Power Grid an elaborate state of the art Telecommunications and Control system was planted, designed, engineered, installed and operated with its Load Dispatch Centre at Kot Lakhpat outside Lahore. This was the author's first assignment in WAPDA where I brought in new technology. This system provided for the first time in Pakistan multi-station direct distance dialing telephony as early as 1961-62, together with telemetering, teleprotection and it also provided automatic load-frequency control, utilizing microprocessors for the first time.

Further the electrification of Railways was started. The 200 mile Lahore – Khanewal section was commissioned in the early 1960's.

Village electrification was rather slow: upto the late 1960's the average number of villages electrified per year in West Pakistan was hardly 100-200. With a renewed effort, combining teamwork with talent, there was a sharp acceleration in the rate of village electrification, which increased to about 1000 per annum by the

end of 1970's, rising further around 5000 every year in the late 1980's and 1990's. The part of WAPDA's charter on which there was no progress had been Inland Navigation.

Starting with 119 MW in 1959 Pakistan had an installed power capacity of 1741 MW by the end of 1969, which at that time was more than the installed power capacity of South Korea, 1636 MW. By 1976 the installed power capacity had reached 2,775 MW. WAPDA's great achievements from 1958 to 1976 can be ascribed to number of factors.

A key factor was the vision, integrity and organizational skills of the founding chairman, Ghulam Faruque. He was able to articulate the goals of the organization and develop an institutional structure in terms of formal rules as well as norms. The rules enabled hiring the finest professionals for every position and giving them authority and autonomy within coordinated teams for every project. Most modern management methods were utilized some even ahead of their time, like non-hierarchical management structures. Reputable organizations in the West similar to WAPDA were studied and Reports produced on best practice management and technology practices. These included The Tennessee Valley Authority, Swedish State Power Board and Ontario Hydro Canada. Discussions on projects were without restraints. At the same time a work culture of high performance with impeccable integrity inculcated in the team was an important factor in the achievements of WAPDA in its first phase. WAPDA remained in that period an autonomous organization, with no interference or hindrances placed by other government entities. (Unfortunately that autonomy was subsequently lost)

WAPDA's deterioration started after 1976. Up to that time all of WAPDA's Chairmen and Members of the Authority were high quality officers from the Civil Service or professional WAPDA engineers. From 1976 to 1991 WAPDA was continuously headed by those who were neither from WAPDA nor had the professionalism, competence or integrity required to successfully run the country's largest development organization. There is a prevailing view amongst some associated with WAPDA in the early years that corruption has been the most significant factor in its institutional decay.

If economic development was to be achieved, large amounts of electric power would be needed. For that purpose the pace of hydroelectric development should have been accelerated. Since this was not done, there were power shortages leading to electricity shortages in the late 1970's, 1980's and 1990's leading to the crisis that has been manifest in recent years. To start with it could be argued that some thermal power was needed, but the stress should have been on hydroelectric power. Instead thermal power stations were built one after the other. The reason given each time was that since power was needed urgently, a thermal power station could be added in 2-4 years whereas large hydroelectric power stations would take longer. The other reason usually proffered for the failure to utilize the hydro power potential was that all three provinces were against the construction of the Kalabagh dam. But no reason was given why the other three large hydel projects, better in all respects, and many medium hydel projects could not be built during this long period of over 41 years.

The Kalabagh lobby's insistence on only Kalabagh dam, in the

absence of an inter-provincial consensus on this project, has been another factor in the long delay in further developing the critically required water storage and power production potential of Pakistan. It is encouraging to note that the government has now decided the expeditious construction of Diamir-Basha and Dasu dam projects.

In the 1994 Power Policy, the terms offered to the IPPs were rather generous: 6.75 cents per KWhr with pass through fuel charges. This is in contrast to other countries, like Bangladesh and Egypt which were contracting power from IPP's at between 2.5 and three cents. Even the American Power Company had reduced their rates in the USA from five cents to 3.5 cents. The very high price per unit offered to the IPPs by the Pakistan government of the time resulted in a heavy drain on WAPDA as well leading to unaffordable electricity tariffs.

After Tarbela's completion, apart from Ghazi Barotha 1450 MW hydroelectric power station no dam or sizeable hydel project was built. Even the work of completing the Feasibility studies and preparing bankable documents of the many known large and medium hydroelectric projects was not undertaken. WAPDA, the organization whose primary purpose is water-power development became a thermal power development organization. The high cost per unit of electricity combined with inadequate and inefficient supply has caused serious adverse effects on the quality of life of citizens, their standard of living, economic growth, employment, real income distribution and exports. Because more and more thermal power was added, billions of dollars of oil had to be imported every year. By 2015 the oil import bill was USD 15.6 billion. More and more thermal power stations were added with much higher cost than hydro-electricity. Electricity became unaffordable for industry, agriculture and all other consumers. This resulted in demand growth slowing down. This situation of suppressed demand has persisted. The cost of hydel generation is undoubtedly much lower. At Tarbela up to the year 2000 it remained PKR 0.17 and went up to PKR 0.54 in 2013. By contrast, WAPDA's thermal power costs in 2013 ranged between PKR 2.46 to 2.97. The cost per unit of electricity provided by IPP's even in 1994 was much higher. This was at an assumed load factor of 60 percent. With lower load factors costs are much higher.³ With fuel price increases, they have gone beyond Rs 16 per KWhr.⁴ This is a disastrous situation for a developing country.

In the early 1980s, The Small Hydel Development Organization was created, which was later changed to SHYDO, Sarhad Hydel Development Organization. This organization has done considerable work in collaboration with GTZ, in identifying a large number of medium and small sized hydroelectric sites. A total potential of about 5000 MW had then been identified.

A major portion of Pakistan's hydroelectric potential is in Khyber Pakhtunkhwa. The very large, large and medium sized projects of this province are included in WAPDA's Vision 2025. Some are being taken through P.P.I.B. Apart from this, the government has also formulated an investor friendly hydropower policy to be implemented by Pakhtunkhwa Energy Development Organization, PEDO. A Master Plan with phased time lines has been devised. Implementation of the KPK Hydropower Master Plan within project costs and timelines will result in providing adequate and affordable electricity, thereby reviving industrial and commercial activities and providing job opportunities.⁵

3. Parts of this paper have been drawn from an earlier paper by Imtiaz Qazilbash which forms part of the World Bank publication titled: Pakistan's Water Economy – Running Dry.

4. Imtiaz Ali Qazilbash. Pakistan has 100,000 MW Production Potential, The Express Tribune, November 23, 2015.

5. Planning Power Growth, The News, January 25, 2016.

3. Vision 2025: WAPDA's Programme for Water Resources and Hydropower Development

It took all those years from June 1975 to August 2000 to finally get massive water power development back into the focus, that is essential for Pakistan's development. Launching by WAPDA of the Water Resources and Hydropower Development Program, Vision 2025, is of momentous importance and will have far reaching beneficial effects. WAPDA has once again been brought back to its original and primary task of water resources and hydroelectric development. Although WAPDA's record before 1976 is replete with great achievements, the programme that it has now embarked upon is greater than anything it has ever undertaken before. Initially it was to add 27,000 MW power as well as 65 MAF of additional water storage at an estimated cost of USD 45 billion. But this programme has been revised and expanded.

Under Part I of this programme, approved by the Federal Cabinet in August 2000, WAPDA had started work on the firming up of the Feasibility Study of the first ranked project of Basha dam, prepared by Montreal Engineering in 1984. This work was to be fully completed by November 2003 but was delayed by a year. Its engineering and tender documents were completed in 2005. Construction of the Basha dam project could have been started in 2006-7. But the then President Parvez Musharraf was persuaded to go for Kalabagh dam instead. So despite a rather favourable fiscal and international situation for launching the construction of Basha dam, it was not pursued.

Basha dam construction has still not been started, despite the high priority given to it by the present government. Although a sum of PKR 32 billion has been allocated for Basha dam in the current fiscal year ending June 2017, the Chairman WAPDA has indicated that even the ground breaking cannot begin before May 2017. So the allocated amount is unlikely to be fully utilized.

Official intentions notwithstanding, the focus still appears to be on thermal projects, mostly coal based and at relatively high cost. A major part of the USD 46 billion CPEC program consists of thermal power projects which are expected to generate 17,080 MW costing USD 35 billion.

Since WAPDA is a key organization responsible for the development of power, it may be advisable to improve its institutional structure with respect to formal rules, enforcement of rules and reestablishing a culture of integrity. All necessary assistance needs to be given to WAPDA for early completion of WAPDA's Vision projects detailed in the latter part of this chapter. Priority should be given to financing hydel projects instead highly polluting coal and other projects. Only then can WAPDA be tasked to bring about the required institutional and organizational changes. Recent discussion with a top management official of WAPDA indicates interference and delay caused by junior staff in federal government ministries.

It is relevant to point out that the World Bank had launched a USD 38 million "Water Sector Capacity Building & Advisory Services Project (WCAP)" between September 1st, 2008, to August 2013 in the following three packages:

- (i) Capacity Building of Support to Federal Institutions in Water Resources Planning and Management.
- (ii) Improvement in Water Resources Management and Development in WAPDA.
- (iii) Project Management Coordination, Strategic Studies and Training.⁶

4. Siltation and Hydropower

4.1. Siltation of Canals and Loss of Storage Capacity due to Over-Sedimentation of Main Reservoirs.

A large part of the watershed of the Indus River and its tributaries lies in Indian held Kashmir and Pakistan has little control over that part. The watershed of the Kabul River lies in Afghanistan. It is estimated that the Indus and its tributaries carry about 0.35 MAF (0.435 BCM) of sediment annually of which 60 percent remains in the system where it is deposited in the reservoirs, canals and irrigation fields. To remove the deposited silt in the canals, annual silt clearance is undertaken. An extensive watershed management programme involving forestation, construction of sediment traps and speed breakers has been undertaken in the catchment areas of Mangla and Tarbela dams to reduce silt deposition. This programme has been quite effective in reducing silt flow into the reservoirs. But over-sedimentation of the main reservoirs is still a concern and measures for replacement of lost storage will have to be taken, particularly when even by the year 2010 the on-line storages had been estimated to lose a total gross storage capacity of about 5.9 MAF.

According to the Pakistan Water Sector Strategy, formulated in October 2002 by the Chief Engineering Advisor, Ministry of Water and Power, an estimated over 24.5 million hectares of the upper Indus Basin watershed lies in the Northern Areas, Azad

Jammu and Kashmir, Khyber Pakhtunkhwa and northern Punjab. The rate of soil erosion in the watershed areas is accelerating mainly due to overgrazing, deforestation, poor land use practices, cultivation of marginal lands enforced by the rapid population growth, and lack of alternative sources of fuel wood as well as economic opportunities in the mountain communities. There is an estimated 1.2 million hectares of eroded land and a further estimate indicates that 76 percent of land is affected to varying degrees, by wind and water erosion.

In the Khyber Pakhtunkhwa annual soil loss due to water erosion is estimated at 2.5 tonnes/ha on unprotected land while on steeper slopes of the Tarbela catchments area the erosion has been estimated at 40 tonnes/ha. The live storage capacity of Tarbela and Mangla reservoirs was estimated to have reduced by 20 percent by 2000 and is likely to reduce by 33 percent by 2020 due to resulting reservoir sedimentation.

Most of the sediments of 200 million tonnes brought down by the Indus are trapped on the Tarbela reservoir. The live and gross storage had diminished from the original 11.6 MAF and 9.7 MAF, by 16 percent and 22 percent to 8.1 MAF and 9.1 MAF, respectively by 1997. The loss of live storage results in the gradual reduction in the regulated yield of the reservoir, leading to reduction of storage and hydropower. Sedimentation has also formed a delta at the upstream end. Erosive action of silt-laden

6. WAPDA. Presentation of Hydropower Potential of Pakistan. December 09, 2009.

water on the dam's outlet works and turbine, increases maintenance cost, eventually rendering them inoperative.

4.2. Remedies for Siltation.

The Watershed Management Project implemented by the Khyber Pakhtunkhwa Forestry Department in two consecutive phases since early 1970's have been quite effective in the reduction of soil erosion and rate of sedimentation of Tarbela reservoir. This effort needs to be continued and made even more effective for Tarbela as well as the other reservoirs. It is also essential that the rapid deforestation estimated at 7000 - 9000 ha annually be strictly checked. About 88 percent of deforestation is due to tree cutting for fuel. Very serious consideration has to be given to providing alternative and cheap energy for cooking and heating etc. Thousands of sites exist for micro and mini hydel power stations and they should be established on an urgent basis.

Work by Mr Imtiaz Qazilbash in 1980's on micro and mini hydel sites in the Khyber Pakhtunkhwa showed that 20 KW, 50 KW to 100 KW hydel power stations could then be set up at a cost of only PKR 500,000 to PKR 1,000,000. The resulting benefits would far outweigh these costs.

For Tarbela the sediment problem was recognized at the outset. Its life was forecast to be 55 years. The life of the project was originally intended to be prolonged by a combination of scouring through tunnels three and four. Dam engineering at that time did not provide sediment modeling techniques that are

presently available and which would enable the rational design of reservoir flushing.

Various experts and consultants have been studying the sedimentation problem of Tarbela. An inspection panel constituted in 1991 had recommended that: "A comprehensive master plan for management at the Tarbela dam project should be initiated on the basis of studies of sediment research and system planning for the Indus basin, so as to decide the minimum pool levels for the life of the project, need for sluicing outlets and particularly their intake levels. The plan should include watershed and sediment management, alternative arrangement for power sources if the power units have to shut down during sluicing, downstream regulation of sluiced water and studies to minimize the damage of waterways and turbines by sediment". They further stated that there is hardly any time for study and implementation of proposals which may require modifications of tunnels, or for providing new tunnel/orifice spillways and new intakes for tunnels three and four. The delta was to reach the projected intakes in 6 year time (2009) and therefore, the urgency of the situation should have been made clear to all concerned.

With this impending situation, one clear policy initiative that should no longer be postponed is the urgent construction of an upstream dam, necessarily Basha. Only then is an increase in the life of Tarbela by 30 to 40 years possible, as is widely known in WAPDA. As mentioned above, this project should have been started in the 1990's and definitely in 2006, when it was ready to be started in all respects. It could have been completed by 2013.

5. Projected Future Demand

There are several estimates of projected future demand of energy. It is to be noted that generally the basic data is from WAPDA, which generally has based its projections on suppressed demand. It is also a fact that for many years the economy has been faring badly and the power shortages followed by unaffordable tariffs have been the contributing factors.

The National Power Plan,⁷ prepared with Canadian assistance starting in 1991 projected 64,000 MW for 2018 for WAPDA and KESC. The Reference Forecast is based on Energy based forecast; GDP growth of 6.52 percent through the period; Load Factor 67.9 percent reducing to 56 percent. The NPP Forecast is based on GDP growth of 6.5 percent through the period and Load Factor 65 percent through the period. The NPP forecast with Demand Side Management (DSM) scenarios with 6.1 percent growth was expected to be 21,423MW by 2010-11 and 49,078 MW by 2024/25.

The Pakistan Water Sector Strategy,⁸ prepared by the Ministry of Water and Power's office of the Chief Engineering Advisor in giving the Demand Projections has considered three scenarios

for estimating the future power demand:

1. The estimated natural / unrestricted growth of 11 percent. The peak demand was expected to increase to 33,640 MW to 2010 – 2011 and 145,031 MW in 2024 – 25.
2. The actual demand increase i.e. a projected constrained restricted demand growth rate of 8.8 percent. The peak demand was expected to increase to 27,541 MW in 2010 – 2011 and 89,700 MW in 2024 – 25.
3. Based on a conservative increase in demand of around 6.1 percent. The peak demand was expected to increase to 21,423 MW in 2010 – 2011 and 49,078 MW in 2024 -25.

The Planning Commissions Vision 2025, forecasts elimination of current supply shortage by 2018 and caters to growing future demand by adding 25,000 MW by 2018. It also aims to increase water storage capacity from the currently 30 days to 45 days by 2018 and to 90 days by 2025. For this, new resources need to be built urgently.

6. Impediments to Hydroelectric Development

As discussed in the preceding section, WAPDA was an efficient organization with a culture of integrity and professionalism from 1958 to 1976. However with Martial law and appointment of non-professionals in WAPDA, over a period of 15 years, institutional decay took place. Since 1984, we could have built the three non-controversial mega projects, Basha, Dasu and Bunji to add 16,000 MW power. Together with another nine very large, 10 large and dozens of smaller ones that could have added another

50,000 MW. Failure to actualize this possibility was one of the major reasons for inadequate power development, as well as over dependence on oil powered thermal power with its unaffordable cost of imported oil.

6.1. Electricity from Iran.

Iran is already supplying electricity to Pakistan in Balochistan.

There are several reports of Iran's offer to 3000 MW to Pakistan with a short gestation period for the project. This is a promising opportunity, which if permissible under international law, could be considered on economic, temporal and logistical grounds.

6.2. The Way Forward.

The government has rightly announced that the Diamir-Basha project has the highest priority. Construction of Basha 4500 MW should not be delayed any further and almost simultaneously with Dasu 4320 MW. Basha would not only provide 8.1 MAF gross water storage, it would increase the life of Tarbela by 30-40 years. Acceleration of work on the hydel projects given below is imperative.

6.3. Very Large and Large Projects.

Pakistan has 14 mega or very large hydroelectric projects to be completed: Basha 4500MW, Dasu 4320MW, Bunji, 7100MW Kalabagh, 3600MW, Pattan, 2800MW; Thakot 2800MW, Shyok/Yugo 2800 MW, Yulbo 2800 MW, Tungas 2100 MW, Duudhnia 960MW, Neelum-Jhelum 969 MW, Kohala 1100 MW, Karot 720 MW, Tarbela 4th Extension 1410 MW, totaling 45089 MW. Only one project is controversial, Kalabagh. But there are a whole range of hydel projects that can be completed in no more than three years.

In addition to the 14 above mentioned sites, there are 75 large and medium sites that are in various stages of development. The total number of hydropower sites is about 950, according to GTZ, including hundreds of small hydels. What is needed is to give the highest priority to the development of large and medium sites as well the small ones. The 87 identified projects can produce about 65,000 MW.

6.4. WAPDA Projects.

Out of the WAPDA Vision 2025 projects the following is the present status:

- Five projects, Khan Khwar (KPK) 72MW; Allai Khwar (KPK) 121 MW; and Jinnah (Punjab) 96 MW, were completed in 2012 and 2013. Duber Khwar (KPK) 230MW substantially completed; Gomal Zam Dam (SWA) 17MW totaling 436 MW completed in 2013.
- Besides Basha there are four ongoing projects: Neelum – Jhelum (AJK) 969 MW; Golen – Gol (KPK) 106 MW; Keyal Khwar (KPK) 122 MW and Kurram Tangi (NWA) 83.4 MW totaling 5780.4 MW.
- The feasibility study of Dasu (KPK) (Phase I and II) 4320MW has been completed.
- The feasibility study of Bunji (GB) 7100MW has been completed. Detailed design and Tender documents in progress since August 2011.
- The draft feasibility studies of two projects, Lower Spat Gah (KPK) 496 MW and Lower Palas Valley (KPK) 665 MW have been completed. They are under Public – Private Partnership mode.

- Ten projects undergoing Feasibility studies include Pattan (KPK) 2800 MW; Mohmand (Munda) (KPK) 740MW, Thakot (KPK) 2800 MW; Phandar (GB) 80MW; Trappi (KPK) 30MW; Basho (GB) 40 MW; Dudhnia (AJK) 960 MW; Shyok (GB) 520 MW; Harpo (GB) 34.5 MW, Lawi (Chiral KPK). PC-1 submitted. These total 8040MW.
- Two projects with their pre-feasibility studies completed are Middle and Upper Palas (KPK) 555MW and Middle and Upper Spat Gah (KPK) 778 MW.
- Two large projects Tungas (GB) 2100 MW and Yulbo (GB) 2800 MW are in the planning stage.
- Tarbela 4th Extension 1410 MW and 5th Extension 500 MW are to be completed in 2017.
- The rehabilitation of Mangla will add 310 MW and of Warsak 300 MW.
- Between 2015 and 2018, WAPDA had planned to add 12,857 MW of hydropower and between 2020 and 2025, 14,970 MW.
- The above 30 are WAPDA Projects totaling 35,568 MW. Besides these, there are six projects totaling 2203 MW.⁹

6.5. PPIB Projects.

PPIB is expected to complete six hydel projects, including Kohala 1100 MW USD 2.4 billion and Suki Kinari 840 MW USD 1.8 billion both with Chinese help, Bagh 600 MW, Azad Pattan 640 MW, Karot 720 MW USD 1.42 Billion with Chinese help, Chakoti 500 MW, by 2018 to add 4400 MW.¹⁰

6.6. Other KPK Projects.

Besides these, other Khyber Pakhtunkhwa projects have the potential to generate 9482 MW. Its government organization, PHYDO, now PEDO, is involved with 28 projects; feasibility studies of 77 have been completed. Raw sites with a potential of 8930 MW have been identified. As many as 356 micro hydel community based projects have also been approved by the KPK government. These micro hydel projects should be extended to a wider area with streams.

The Government of KPK has requested for its 29 hydel projects to produce 3900 MW and costing USD 12 billion to be included in the CPEC.¹¹

6.7. AJK Projects.

In Azad Jammu and Kashmir the feasibilities of a large number of hydel sites on River Jhelum, Poonch and Neelum have been completed. This estimated potential is 5600 MW. They include Shountir 48 MW, Jagran II 48 MW and Nagdar 35 MW.

WAPDA's Vision 2025 of adding 12,857 MW of hydropower between 2018 and 2025 does not appear achievable within the specified time schedule. This is mainly due to delay in commencing the construction of Basha 4500 MW, Dasu 4320 MW as well as other projects listed above. It is necessary that the government recognizes that electricity is not the only requirement, an equally vital imperative is water storage.

9. Pakistan's Water Sector Strategy. Office of Chief Engineering Advisor, Ministry of Water and Power, 2002.

10. Imtiaz Ali Qazilbash, Transforming Economy with Hydroelectric Development, Dawn, April 14, 2003.

11. WAPDA: Hydropower Development in Pakistan. Hydro Planning Organisation.

6.8. Over 30,000 MW in 10 Years.

Pakistan has identified projects to move towards utilizing the long term potential of 100,000 MW and a medium term potential of over 53.61 MAF of water storage. No other source, nuclear, coal, wind or solar can yet compete with hydropower.

It's imperative that we proceed and accelerate the programme of massive dams and very large, large, medium and small hydel projects to add 30,000 MW in 10 years and 50,000 MW in 15

years. We need to bring up the storage to 53.61 MAF. A shift of emphasis from thermal to hydel development is needed. Work in progress on dozens of hydel projects has to be vigorously pursued. This is the only programme for abundant and affordable electricity. New reservoirs will provide water for agricultural, industrial and domestic consumption; at the same time these reservoirs can ensure sufficient storage in winters and mitigate floods in summers. Thus Pakistan can progress towards sustainable economic development.

REFERENCES

- Qazilbash, I. A. (2003). Transforming Economy with Hydroelectric Development. *The Daily Dawn*.
- Qazilbash, I. A. (2015). Pakistan has 100,000 MW Production Potential. *The Express Tribune*.
- Sidiqqi, H. A. (2016). Planning Power Growth. *The News*.

CHAPTER

8

Local Government, Inclusive and Sustainable Development

CHAPTER 8

Local Government, Inclusive and Sustainable Development¹

1. Devolution, Democracy and Inclusive Development

As the societies and economies become more complex and the size and the responsibilities of the governments increase, centralized governance becomes both inefficient as well as distant from the people, hence the importance of decentralization as a means of participatory, transparent and efficient government.

Decentralization involves an institutionalized devolution of governmental power with the aim of enabling the direct partici-

pation of people at the local level and thereby increasing the responsiveness and efficiency of government. It has been defined² as “the restructuring or reorganization of authority so that there is a system of co-responsibility between institutions of governance at the central, regional and local levels according to the principle of subsidiarity...”³

Decentralization can also facilitate a Participatory Development process which Akmal Hussain had earlier defined as “the

1. This chapter has been contributed by Akmal Hussain and Nazeef Ishtiaq.

2. UNDP, Decentralized Governance Programme: Strengthening Capacity for People -Centered Development, Management Development and Governance Division, Bureau for Development Policy, September 1997, p. 4.

3. According to the principle of subsidiarity, a higher tier of government should not perform a function which can be effectively performed by a lower tier.

participation of the poor at the village level to build their human, natural and economic resource base for breaking out of the poverty nexus".⁴ However for local government to fulfill its aims of a participatory development; grassroots democracy; responsiveness to the needs of the poor; and efficiency in the provision of public services, it is necessary to consider the risk of elite capture.

1.1. Local Governments, Elite Capture and Inefficiency.

Rural society in many areas of Pakistan has asymmetric power structures at the local level where large and influential landlords can form alliances with revenue officials, police officials, local administration and even armed gangs of criminals to exercise power. Elite power at the local level can be used for getting rents from government development projects and to establish a network of patron-client relationships with the dependent peasantry through which "vote banks" for political power at the provincial or national level can be maintained.

In this situation, grabbing hand models of government which Shleifer and Vishny⁵ and Shleifer and Blanchard⁶ have conceptualized at a national level could extend to local government. In such a case, the aims of achieving efficiency in the provision of public services and participatory democracy at the local level would be defeated. To avoid elite capture of local government, it is necessary to develop community organizations of the poor at the village, union council, tehsil and district levels and establish institutionalized links with the corresponding tiers of local government. Thus the deprived sections of rural society can have a voice on a systematic basis in the process of local level decision making which affects their lives.

The following are some of the key factors which contribute towards the phenomenon of elite capture in Pakistan:

(i) A High Degree of Dynasticism.

The dominance of dynastic politics makes the political system of Pakistan highly uncompetitive and difficult to participate in for the common people, especially the poor. Ali Cheema and Muhammad Farooq Naseer gathered the data for the members of National Assembly from Punjab who were elected during the 2008 general elections and have shown that 53.4 percent of all the members belonged to a political dynasty. In contrast, only 28.6 percent members of the Indian *Lok Sabha* belonged to a political dynasty in 2010.⁷ They have further argued that political parties in Pakistan prefer to choose candidates from the political dynasties which they consider to be as "electables".

The phenomenon of dynasticism in Pakistani politics is not just limited to the higher tiers of government but it is also present at the local government level. The dynastic politicians who get elected at the provincial and federal levels and also hold the key positions in political parties, have a great deal of influence on the selection of candidates for the local government elections. A large number of candidates who get the tickets to contest in

these elections are those who either belong to a political dynasty or are well connected to these dynasties. This strengthens the control of the federal and provincial dynastic politicians over the local governments. It becomes difficult for the poor and the marginalized segments of the society to contest against these powerful elites belonging to political dynasties and supported by the political parties.

(ii) Weak Organizational Structure of the Political Parties at the Grassroots Levels.

A weak organizational structure of the political parties at the local levels also favours the elites. In the past, local government elections have always been held on non-party basis. With no involvement of the political parties, local elites, with their power and wealth, can easily contest the elections and can even turn the outcome in their favour especially in the rural areas. If the poor and the marginalized segments of society are to compete in the elections, they would require political and financial support from the political parties, which in turn requires a strong organizational structure of these parties at the local grassroots levels especially in rural areas. But the political parties always find it convenient to lend their support to the local elites which they consider as *electables* who can also finance their own election campaigns.

Lack of a suitable political organization and institutional structure at the local levels has also influenced voter preferences. A recent survey conducted by Ali Cheema⁸ has revealed that one of the major factors in the preference of a candidate by voters is their perception about the connectedness of a candidate. Voters are more likely to vote for those candidates whom they perceive to be well connected with the judiciary, police and with the politicians in the higher tier governments. Voters believe that the candidates who are not well connected will be unable to help them in their dealings with the local police and judiciary and they will also be unable to perform their functions properly as the elected members of local government because these governments will be dependent upon the provincial governments and politicians for resources. Thus, the voters themselves seem to prefer to elect the local elites who are well connected and they believe that in the present institutional and organizational structure, a candidate who is not well connected, will not be able to perform his/her functions properly.

(iii) Politics of Dharas (Patron-Client Vote Blocks)

In rural areas, voters rarely cast their votes as individuals, but they are usually part of a *dhara* (vote block). According to Ali Cheema and Shandana Khan Mohmand,⁹ *dharas* play an important role in the rural politics of Pakistan. A *dhara* is usually controlled by an elite family of a village which also decides about its voting preference. The aim of the candidates is usually to win over the influential *dhara* of a village by promising them certain provisions. Instead of reaching the poor people directly, candidates find it convenient to win support of an elite family in a village which controls the dominant *dhara*. Therefore, when a

4. Akmal Hussain, Poverty Alleviation in Pakistan, Vangaurd Books, Lahore, page 26.

5. Andrei Shleifer and Robert Vishny, The Grabbing Hand, Harvard University Press, Cambridge, Massachusetts, 1998.

Andrei Shleifer and Robert Vishny, Corruption, Quarterly Journal of Economics, Volume 108, Number 3, 1993, pages 599-617.

6. Andrei Shleifer and Oliver Blanchard, Federalism with and without Political Centralization – China versus Russia, NBER Working Paper No. w7616, 2000.

7. Ali Cheema, Hassan Javid and Muhammad Farooq Naseer, Dynastic Politics in Punjab: Facts, Myths and their Implications, Institute of Development and Economic Alternatives Working Paper No. 01-13, 2013.

8. Ali Cheema, Candidate Connectedness, Government Performance and Support for Candidates – Evidence from Pakistan, 2016.

9. Ali Cheema and Shandana Khan Mohmand, Decentralization and Inequality in Pakistan: Bridging the Gap that Divides, Chapter in S.M. Ali and M.A. Saqib (eds.), Devolution and Governance Reforms in Pakistan, Oxford University Press, Karachi, 2008.

candidate comes into power, his/her first preference is to favour the local elites by providing them better and easier access over public goods and services. A survey conducted by Cheema and Mohmand shows that after the local government elections of 2001, the provision of public goods and services remained highly unequal within the Union Councils. While the village elites gained a significant increase in the public provision after the local government elections, there was hardly any change in the provision to the poor and marginalized segments of the village and they remained highly underprovided.¹⁰

1.2. Devolution of Power and Inclusive Political and Economic Development.

Ideally, decentralization involves the devolution of (i) Political, (ii) Administrative and (iii) Fiscal powers to the lower tiers of government.

The institutional framework of local government aims to achieve devolution of power. This involves the unleashing of the creative potential of local communities and their ability to find innovative solutions to local problems. Thus, a local government system is essentially empowerment of local communities. It is not simply a decentralization of administrative functions.

The following are some of the important features and benefits of decentralization if institutional changes could be brought about to establish countervailing structures of power to that of the elite and the hitherto excluded sections of society could be enabled to participate in the process of local government decision making:

- (i) **Greater Accountability.** Local governments are closer to and are easier to access for the common people. Due to clearly defined and smaller set of functions assigned to these governments and the fact that they have to face re-election, they are easier to hold accountable for their actions as compared to the bureaucracy and higher tiers of government. Therefore the local governments are likely to be more transparent in their operations because the common people will be more informed and can also monitor the activities and performance of this level of government.
- (ii) **Accessibility.** Decentralized local governments are easier to approach for the common people, especially the poor, and thus their problems are more likely to be addressed quickly, especially in the rural areas.
- (iii) **Increased Participation in the Political Process.** Decentralization improves the relationship between the political organizations and common people at the

grassroots levels and increases the participation of the people in the political process.

- (iv) **Increased Political Competition and Greater Political Mobility.** Decentralization increases political participation and as a result new political talent emerges. Political mobility also increases as a result of decentralization as those politicians who deliver and perform well at the local levels have a greater chance of moving towards the higher tiers of government based upon their performance. This also increases the degree and quality of competition in the politics and strengthens democracy.
- (v) **Innovation in Governance.** Local governments can bring innovations into the governance practices as each locality has its unique set of problems which require a unique set of solutions.
- (vi) **Greater Economic Efficiency in the Provision of Public Goods and Services.** Local governments are likely to be more efficient in the provision of public goods and services in their domain since (a) They have better information about the local problems and requirements; (b) They can provide better oversight to the local projects; (c) They have greater incentives for using resources more efficiently and for maintenance of development projects as well as efficiency of services provided; (d) They can achieve greater resource mobilization through local taxes as the local communities will be more willing to pay when they can see the direct benefits; (e) They also have greater incentives to allocate resources to the projects which are beneficial for the poor.
- (vii) **Empowerment of the Poor and Marginalized Segments of Society.** Effective decentralization empowers the poor and the marginalized segments of society through increased participation in the system of governance.
- (viii) **Achieving Inclusive and Sustainable Development.** Decentralization could be an effective means of achieving the key objectives of inclusive and sustainable development as it can improve access of the poor and the marginalized segments to government services, education, health, credit and employment. With adequate capacity building, local governments can be helpful in eradicating poverty and improving gender equality. They can also play a key role in building resilience in the local communities against economic shocks and natural disasters occurring as a result of climate change.

2. Decentralization and Local Governments in Pakistan

2.1. Constitutional Status of Local Governments in Pakistan.

With the enactment of Article 140-A through the 18th Constitutional Amendment, local governments now have constitutional protection in Pakistan. The Article 140-A mandates, that “each province shall, by law, establish a local government system and devolve political, administrative and financial responsibility and authority to the elected representatives of the local government”. It is important to note that

although local governments are recognized and protected as a separate tier but the Constitution of Pakistan neither specifies the basic framework of these governments nor does it specify the set of core functions which are to be devolved to these governments. It is the responsibility of the provincial governments to develop the basic framework of local governments in their provinces and to choose the set of functions which are to be devolved.

10. Ibid.

As Ali Cheema notes, the term devolution in the Article 140-A implies autonomy and local self-government, instead of the local governments being agents of a higher tier of state. Furthermore, creating effective local governments will require giving a core set of functions to local governments.¹¹ However, we would argue that merely giving “autonomy” and “core functions” to local governments, while being necessary, are not sufficient conditions for effective local governments. Equally important, as we have suggested, is to establish the institutional structure through which the poor and middle classes can exercise countervailing power to that of the elite at the local level. Apart from this, if the granting of “core functions” to local governments is to be meaningful, then adequate devolution of power has to accompany devolution of responsibility.

At the same time the exercise of these responsibilities would require both financial and technical resources apart from training and capacity building of local government officials. In this regard, it may be pointed out that the Constitution does recognize that the local governments must have political, administrative and financial powers. In developing the proposed institutional structures of effective local government, these stipulations of the Constitution need to be put into effect.

2.2. A Comparative Analysis of Provincial Legislation for Local Government Structures.

2.2.1. Provincial Similarities of Local Governments. Due to the constitutional requirement for the establishment of local governments, the Supreme Court of Pakistan directed the provincial governments to hold local government elections in their provinces and devolve adequate powers to these governments. The present structures of local governments in each of the four provinces of Pakistan are based upon their respective Provincial Local Government Acts. Balochistan passed its Local Government Act in 2010 whereas Punjab, Sindh and Khyber Pakhtunkhwa (KPK) passed their Local Government Acts in 2013. These Provincial Local Government Acts lay down the basic framework of local governments and specify the functions and powers assigned to them in each of the four provinces. A number of similarities can be found in the four Local Government Acts but there are some key differences as well.

Saeed Shafqat has noted the following common features in the Local Government Acts of the four provinces:¹²

- (i) As compared to the Local Government Act of 2001 (during Musharraf regime), the present Provincial Local Government Acts have devolved fewer functions and powers to the local governments.
- (ii) Local government elections are to be held on party-basis in all four provinces, except for the village and neighborhood councils in KPK.
- (iii) Provincial governments have retained the authority to suspend or remove the elected local government heads.
- (iv) Local governments will be dependent upon the Provincial Finance Commissions for funds which are established in all four provinces and are headed by the Provincial Finance Ministers. Local governments will receive formula based fiscal transfers from the Provincial

Finance Commission Awards depending on the level of development and population of a particular district/locality. Local governments will have limited powers to impose taxes.

- (v) All four Local Government Acts mandate the establishment of Local Government Commissions which are to be headed by the Provincial Minister for Local Governments. These commissions will have the authority to perform inspections, social audits and resolve disputes of local councils and submit reports and recommendations to the provincial government.
- (vi) Local governments have been authorized to constitute special panels in order to facilitate out-of-court resolution of disputes.

2.2.2. Provincial Differences in Local Governments. The following are some of the province-specific features of Local Government Acts and the key differences between different Acts:

- The Punjab Local Government Act 2013 requires the establishment of separate Education and Health Authorities in all districts with members from the provincial government, local governments, technocrats and private sector. The Chief Minister will be the appointing authority who can also dismiss the heads of these Education and Health Authorities or dissolve them altogether. According to Local Government Acts of the other three provinces, the elected heads of these governments are responsible for basic education and health services in their districts.
- As compared to the other Provincial Local Government Acts, the KPK Act provides greater autonomy to the local governments and it also devolves the highest number of functions. In contrast to the other provinces, local governments in KPK will have complete authority over the local administration and bureaucracy including the revenue officials in their jurisdiction. Furthermore, the local governments in KPK will also have the power to supervise the local police whereas in other provinces police remains under the supervision of provincial government.
- In Punjab and Sindh, large entities such as Lahore Development Authority, Lahore Solid Waste Management Board, Punjab Agriculture and Meat Company, Karachi Sewerage Board and Sindh Building Control Authority remain in the control of provincial governments. This is likely to conflict with various functions assigned to local governments and the local bodies will not be able to perform their duties effectively especially in the large cities such as Karachi and Lahore.

2.3. To What Extent have Powers been devolved to the Local Governments?

As discussed above, for the local governments to function effectively, they must have political, administrative and fiscal powers. Although the Constitution of Pakistan requires that each province shall “devolve political, administrative and financial responsibility and authority to the elected representative of local governments”, but, in reality, sufficient powers have not been

11. A Note for the Lahore High Court by Dr. Ali Cheema, Amicus Curiae to the full bench of Lahore High Court, in Ms. Imrana Tiwana and others Versus the Government of Punjab case: Writ Petition Under Article 199 of the Constitution of Pakistan.

12. Saeed Shafqat, Local Government Acts 2013 and Province-Local Government Relations, Development Advocate Pakistan, Volume 1, Issue 1, January 2014, pp. 4-9.

devolved to the local governments.

Saeed Shafqat has rightly pointed out that the Provincial Local Government Acts are “fragmented, and appear to be driven by considerations of maintaining the status quo, rather than establishing effective local governance arrangements” through devolution of adequate powers.¹³ In all four provinces, provincial governments have retained a significant degree of control over the local governments and various clauses of the Local Government Acts allow the provinces to interfere in the affairs of these governments and to influence their decision making.

Instead of devolving political, administrative and financial powers within a particular district/locality, these powers have been partially delegated to the local bodies for a limited set of functions assigned to them. Local Government Acts of all four provinces allow the Chief Ministers to dismiss a local government or its head and appoint officeholders after their dismissal. These governments will be heavily dependent upon the provincial Finance Ministries for resources.

2.4. Local Governments and the Challenge of Inclusion of the Marginalized in the Process of Governance and Development.

While the Article 140-A of the Constitution of Pakistan mandates the Provinces to establish local governments, Article 32 of the Constitution stresses that “[t]he state shall encourage local government institutions composed of elected representatives of the areas concerned and in such institutions special representation [shall] be given to the peasants, workers and women”. Thus it is mandatory for the provinces to allow the marginalized segments of society to participate in the political process and make them an integral part of the local governments.

Inclusive and Sustainable Development requires the marginalized segments of society to be an essential part of the process of economic growth and development. If these marginalized sections of society are empowered and a rebalancing of local power structures can be achieved, then local governments can play an important role in inclusive democracy and development. Women, minorities and the poor, once empowered, should be given representation in local

governments and enabled to have a voice in the resolution of disputes, access over justice and participate in decisions regarding local resource allocation, identification of development projects, implementation and monitoring of these projects.

It is commendable that in all four Local Government Acts, seats have been reserved for women, peasants and workers/labourers, and non-Muslims. Punjab and KPK Acts have also reserved seats for the youth. But the reserved seats for the marginalized communities will only benefit these communities if (a) local governments have adequate powers and (b) local elites and provincial political leadership do not influence the selection of candidates to be elected on the reserved seats.

Furthermore, various categories of reserved seats have different definitions in the provincial Local Government Acts. For example, in Punjab, KPK and Balochistan Local Government Acts, a peasant is defined as “a person who is a landless farm worker or, one who during the period of five years preceding the year in which the election is held, has been the owner of not more than five acres of land and depends directly on it for subsistence living”. On the other hand, a peasant is defined in the Sindh Local Government Act as “the person who owns not more than sixteen acres of agricultural land and engages himself personally in cultivation of the land”. In the light of these definitions of a peasant (especially in the Sindh Local Government Act), it is highly unlikely that the poor farmers and landless tenants will find any representation at the local government level. Most poor farmers do not own 16 acres of land (as assumed in the Sindh Local Government Act), and therefore would not be able to qualify for the seats reserved for the peasants. In all four provinces, landlords and local rural elites can exploit this situation and can help their relatives or clients to get elected on the reserved seats for peasants.

Similarly, there is no provision in the provincial Local Government Acts which could ensure that the poor and working women get their due representation in the local governments. As the members on the reserved seats get indirectly elected, therefore local elites and political leadership can easily manipulate the situation and help the members of their families to get elected on the reserved seats for women.

3. Recommendations

3.1. Legislative Changes in the light of the Constitution.

The Constitution of Pakistan makes it mandatory for the provincial governments to establish elected local governments which have “political, administrative and financial powers”. To put this principle into effect, it is necessary to make laws specifying the local governments as a separate (third) tier of government with its unique set of powers and distinct from the federal and provincial governments; it is also necessary to specify a basic framework for these governments and a set of core functions which are to be performed by them.

In this regard an Act could be passed in the National Assembly which recognizes the local governments as a third tier of government in Pakistan with political, administrative and financial powers. Provinces should be allowed to design and implement the specific features of the institutional and organizational structure of the local governments and they must

be able to assign any new functions to these governments. But the provincial governments should not have the powers to alter the basic framework of local governments or to recentralize any of the core functions assigned to these governments.

3.2. Resource Transfer Mechanisms to Local Governments.

The criterion for the transfer of resources from the provincial governments to the local governments ought to be similar to the one which is used for the transfer of resources from the federal government to the provinces. A formula based allocation from the provincial to the local governments could be considered to minimize discretion.

3.3. Improving the Selection Process and Mechanism for Elections on the Reserve Seats.

The legal provision of a minimum percentage of reserved seats

13. Saeed Shafqat, Local Government Acts 2013 and Province-Local Government Relations, Development Advocate Pakistan, Volume 1, Issue 1, January 2014, p. 4.

for the marginalized sections of society (e.g. women, labourers and peasants) is a commendable legislation that will facilitate the building of an inclusive democracy and pluralist governance structures at the local level. However, it is important to ensure that the selection process of candidates and the elections on these seats are not taken over by the local elites. In order to increase the transparency in the whole process, direct elections could be held for the reserved seats as in the case of regular local government representatives.

3.4. Capacity Building of Local Governments.

Special training institutes may be established in every district (with branches in each tehsil within the district) for the elected local government officials. These institutes, comprising technical experts in various fields, could have the following functions:

- Capacity building of local governments in terms of governance, organizational and institutional development, and management of resources at the local level.
- Facilitate and train the local government officials in the

identification of new projects, their implementation and evaluation.

- Train local government officials to build resilience against climate change.
- Linkages could be established between the universities in every district and the local government training institutes there, so that new research can be conducted which addresses the specific problems of a particular district in the areas of governance, institutional structure, resource management, project planning and climate change.

3.5. Building and Facilitating the Organizations of the Poor.

To avoid elite capture of local government, it is necessary to develop community organizations of the poor at the village, union council, tehsil and district levels and establish institutionalized links with the corresponding tiers of local government. Thus the deprived sections of rural society can have a voice on a systematic basis in the process of local level decision making which affects their lives.

REFERENCES

- UNDP. (1997). Decentralized Governance Programme: Strengthening Capacity for People - Centered Development, Management Development and Governance Division. *Bureau for Development Policy*, 4.
- Hussain, A. (1994). *Poverty Alleviation in Pakistan* (p.26). Lahore: Vanguard Books.
- Shleifer, A. & Vishny, R. (1998). *The Grabbing Hand*. Cambridge, Mass: Harvard University Press.
- Shleifer, A. & Vishny, R. (1993). Corruption. *Quarterly Journal of Economics*, 108(3), 599-617.
- Shleifer, A. & Blanchard, O. (2000, March). *Federalism with and without Political Centralization – China versus Russia* (No. w7616). NBER Working Paper. Retrieved from <http://www.nber.org/papers/w7616.pdf>
- Cheema, A., Javid, H. & Naseer, M. F. (2013). *Dynastic Politics in Punjab: Facts, Myths and their Implications* (No.01-13). Institute of Development and Economic Alternatives Working Paper.
- Cheema, A. & Mohmand, S. K. (2008). Decentralization and Inequality in Pakistan: Bridging the Gap that Divides. In S. M. Ali & M. A. Saqib (Eds.). *Devolution and Governance Reforms in Pakistan*. Karachi: Oxford University Press.
- Shafqat, S. (2014). Local Government Acts 2013 and Province-Local Government Relations, *Development Advocate Pakistan, Volume 1, Issue 1*, 4 - 9.

Conclusions and Policy Recommendations

CHAPTER 1 Policy Issues in Economic Growth, Equality and Sustainable Development

A Historic Shift in the Conceptual Basis of Growth Policy

- ★ *The Earlier View on Growth and Inequality Overturned by New Research.* The earlier view that economic inequality is a necessary concomitant to high growth has been overturned by the latest research on the subject which shows that high economic inequality is harmful not only for long term economic growth but also for growth sustainability. Furthermore, the seminal work of Thomas Piketty has also shown that in market based economies there is a long-run tendency for inequality of both income and wealth to increase overtime.
- ★ *Inequality and the Pace of Poverty Reduction.* Recent research also suggests that there is a mathematical relationship between inequality and the poverty reduction effect of economic growth. The idea here is that the higher the initial level of inequality, the smaller the poverty reduction achieved by given rates of growth.
- ★ *The Importance of Government Intervention.* New research and historical evidence suggests that government institutional and fiscal interventions are necessary to regulate markets for reducing inequality and thereby sustaining long term economic growth.

Pakistan's Experience of Growth with Inequality

- ★ *Economic Policy, Economic Growth and Rising Inequalities during the Period 1955-1970.* During the earlier years, Pakistan's policy makers assiduously brought the thinking of the economic orthodoxy of the 1960s into the national policy design. As a result, both inter-personal and inter-regional inequalities increased rapidly which had seriously adverse social, political and economic consequences for the country.
- ★ *Persisting Inter-personal and Inter-Regional Inequalities.* The economic structure that was shaped by elite interests and economic policies during the earlier years (1955 to 1970) persisted in the subsequent decades and so did the tendency for increasing inequality. The latest evidence on economic inequality as well as on multidimensional poverty in Pakistan shows that both inter-personal as well as inter-regional inequalities are not only massive but have been continuously increasing in recent years.
- ★ *The Four Dimensions of Inequality in Pakistan.* The four major dimension of inequality in Pakistan are: (i) Social, political and economic discrimination against women; (ii) Discrimination against religious minorities; (iii) Asymmetric markets in rural areas with respect to the rich and the poor; (iv) Poorer access over markets, infrastructure and public services for those living in remote and backward areas.

Institutional Structure and the Problem of Slow and Unstable Economic Growth

- ★ *The Key Role of Institutions for Economic Performance.* The literature on New Institutional Economics postulates that the fundamental determinant of the performance of an economy is the nature of its institutional structure.
- ★ *Efficient Institutional Structures in Developed Countries.* Developed countries are characterized by an institutional structure where there is open competition which creates incentives for efficiency, innovation, hiring based on merit, productivity increase and thereby long term growth.
- ★ *Inefficient Institutional Structure as a Hallmark of Underdevelopment.* Undeveloped countries are characterized by an institutional structure where competition is restricted in order to systematically produce rents for the elites. Thus, there are lack of incentives for increasing efficiency; hiring is not generally based on merit; there are inadequate incentives for innovation and therefore long term growth is constrained.
- ★ *The Problem of Growth Sustainability.* In terms of growth performance, the distinguishing feature of developed and undeveloped countries is that developed countries are able to sustain per capita economic growth over the long run, while undeveloped countries are unable to do so.
- ★ *Pakistan: The Relationship between a Rent-Based Institutional Structure, Inequality and the Failure to Sustain Growth.* Pakistan has a rent based institutional structure which induces economic inefficiency and in the process of rent generation for the elites, there are persistent inequalities on one hand, and inability to sustain GDP growth on the other.
- ★ *The Pattern of Pakistan's Economic Growth.* Pakistan's growth process follows a pattern of growth spurts followed by periods of stagnation. Each of Pakistan's high growth periods since 1960s has hit into a Balance of Payments crisis that has forced a slowdown of growth in the subsequent period.
- ★ *Elite Failure to Increase Domestic Savings and Diversify Exports.* We have argued that low domestic savings as well as slow export growth constitute only a proximate explanation for Pakistan's inability to sustain high GDP growth. Underlying the low domestic savings rate is the fact that the elites who have been expected to save a substantial proportion of their increased incomes have actually failed to do so and have demonstrated a propensity for ostentatious consumption rather than savings. In the case of slow

export growth, the problem lies in the failure to diversify into high value added knowledge intensive exports which not only fetch relatively higher prices, but also have a rapidly growing share of global demand.

- ★ *The Roots of Low Domestic Savings and Slow Export Growth.* The inadequacy of both domestic savings and foreign exchange earnings is essentially rooted in the existing rent based institutional structure of the economy which lacks incentives and embodies disincentives for both a substantial increase in the domestic savings rate as well as export diversification necessary for achieving accelerated exports and sustained GDP growth.

The New Challenge of Sustainable Development

- ★ *The Imperative of Sustainable Development.* There is now a general consensus globally among the economists as well as policymakers that economic growth, the trajectory of technological change, investment behaviour, social life and priorities of international cooperation have to be reshaped in such a way that the life support systems of the planet can be sustained.
- ★ *The New Dimensions to Economics and Development Policy.* Three key propositions underlie the concept of sustainable development which could change the paradigm of conventional economics and policymaking:
 - i. Economic growth must be in harmony with the protection of the ecosystem. Only then can future generations be enabled to fulfill their needs.
 - ii. Equity should be built into the process of development.
 - iii. There is an essential interdependence between individual human beings within as well as between countries.
- ★ *The SDGs Agenda and the Need to Integrate Sustainable and Inclusive Development into Pakistan's Development Strategy.* Pakistan is a signatory to both the UN Sustainable Development Goals agenda as well as the Paris climate agreement. Therefore mitigation of, and adaptation to climate change and Inclusive Development have become integral to Pakistan's development strategy.

CHAPTER 2 A Framework for Inclusive Development: Growth through Equity

Small and Medium Farmer Agriculture Growth Strategy

- ★ *Shifting from an Elite Farmer Strategy to a Small Farmer Strategy for Growth Sustainability in Agriculture.* A strategy of growth through equity in agriculture would require an improvement in the distribution of productive assets by enabling small farmers to acquire ownership of land on one hand and enabling them to use it efficiently on the other. Such a strategy would have following elements:
 - Enabling landless tenant households in this sector to acquire land. A critical constraint to increasing yields of tenant farms is that since they lose almost half their output to the landlord, the small farm tenant has neither the incentive nor the ability to invest in increasing yields per acre.
 - Developing an institutional mechanism to give small farmers access over quality inputs.
 - Providing small farmers access over technologies for increasing their water use efficiency in situations of water scarcity and over technologies for producing high value added crops.
 - Giving small farmers equitable access over markets in areas where there are asymmetric power structures at the local level.
- ★ *Social Enterprise to Enable Growth of the Small Farm Sector: The SFDC.* Develop Small Farmer Development Corporations (SFDCs) in all provinces which would provide integrated support services to the small farm sector through the following functions:
 - (i) Land development, including laser leveling for better on-farm water management.
 - (ii) Drip irrigation to increase water use efficiency.
 - (iii) Soil testing and provision of composite fertilizers to small farmers to achieve congruence between the chemical composition of fertilizers used and the nutrient requirement of the soil.
 - (iv) Provision of high quality seeds and appropriate pesticides.
 - (v) Provision of credit and equitable access over markets.
 - (vi) Providing focused extension services to improve farm practices and adoption of new technologies such as tunnel farming for off-season vegetables and flowers and bee keeping for honey production.
 - (vii) Linking up high value production of fruits and vegetables on small farms with a supply chain, involving international standards of safety and quality in the production process, grading, packaging, storage, certification and then linkup with a database for getting export orders.
 - (viii) Diversification of the farm sector such that the SFDC develops export based production of milk, milk products, meat and inland fisheries.

Equitable Growth through Participatory Development

- ★ *Participatory Development to Unleash the Creative Potential of the Poor.* It is important to achieve autonomy of community level organizations rather than having a centralized, bureaucratic and top-down organizational structure of large NGOs. The autonomous community based organizations (CBOs) at the village level through a bottom-up process should be permitted to form cluster apex organizations with other CBOs.
- ★ *Keeping Overheads Low.* Autonomy of CBOs is not only necessary to unleash the creative potential of the poor, but is also necessary to keep overheads to the minimum. Some of the existing large NGOs, especially those initiated by the government, have such large overheads as to make them financially infeasible and permanently dependent of government/donor resources.
- ★ *The Role of Facilitators for taking Participatory Development to Scale.* The development of a large cadre of community workers and development experts can play the role of external facilitators in the mobilization of communities, providing access over technical expertise for local projects, and institutionally linking up CBOs with skill training facilities and markets.

Rapid Growth of Small and Medium Enterprises (SMEs) for Inclusive and Sustainable Development

- ★ *Higher, Equitable and Sustained Growth through SMEs.* Creating an institutional framework for enabling small scale industries in the high value added sectors such as, export oriented automotive parts, electronics, moulds, dyes and software sectors, especially along the CPEC. This could lead to a higher and more equitable growth accompanied by higher export growth.
- ★ *Institutional Mechanism for Outsourcing.* Developing an institutionalized mechanism for the large scale manufacturing sector to outsource the manufacture of various components and automobile spare parts for which many small scale units have a potential in terms of basic technical skills but they find it difficult to get orders and thus resort to producing low value added items for the retail market.
- ★ *Management Skills for Quality Control.* Developing the management skills of the small and medium enterprises in order to ensure quality control on the production line to meet orders on a regular basis from the large scale manufacturing sector.
- ★ *Vocational Skills for Millwork and Metal Fabrication.* Facilitating the small and medium enterprises in the development of advanced skills in millwork, metal fabrication and precision welding, all of which are needed for producing high quality products with low tolerances and precise dimensional control.
- ★ *Access over Credit and Capital.* Providing small and medium enterprises access over financial resources for capital investment in modernizing their stock of machines and overcoming the difficulties in getting credit facilities from the commercial banking sector due to lack of collateral.
- ★ *Common Facilities Centres for Regionally Equitable Growth.* Set up Common Facilities Centres (CFCs) in specified growth nodes in small towns where clusters of small scale manufacturing units already exist. These CFCs could constitute a decentralized support system to provide access to a comprehensive package of services.
- ★ *Development of the Software Sector for Youth Self Employment and Export of Knowledge Intensive Products and Services.* Training of software experts supported by credit and market access could induce the rapid growth of software companies which would not only enable self-employment for educated youth, but also accelerate and change the composition of Pakistan's exports towards knowledge intensive products and services.

Reducing Regional Economic Disparities

- ★ *The Need for Reducing Regional Economic Disparities through Public Policy.* The government of Pakistan has not effectively counteracted the tendency of the market mechanism to cumulatively increase regional disparities and as a result these disparities have been continuously increasing and have become a persistent political issue in Pakistan.
- ★ *The Need to bring the Regional Dimension as a Centrepiece of the Growth Strategy.* Traditionally, economic planning and policies in Pakistan involve first, the allocation of government resources among various sectors of the economy (agriculture, industry, energy etc.); then an attempt is made to achieve consistency between sectoral growth targets and the available financial resources; whereas the spatial dimension of resource allocation is assumed out of the policy planning exercise except for ad-hoc special development programmes which are a response to contingent political imperatives but are marginal to the overall plan. Thus there is a need to make the regional dimension central to the planning exercise.
- ★ *Development of Infrastructure in Potential Growth Nodes for Regionally Balanced Growth.* There is a need to identify growth nodes in backward areas and to develop infrastructure in such regions.
- ★ *Maximizing the Economic Benefits and Achieving Regionally Equitable Growth through CPEC.* China has a total trade volume of USD 4,477 billion. If CPEC is linked with the development of markets along this corridor, and thereby attracts even one percent of China's trade, a trade volume of about USD 45 billion annually could be generated by the market networks on the hinterlands of CPEC. Thus CPEC has the potential of developing many remote areas and thereby reducing regional disparities. This requires maximizing the secondary multiplier effects through careful planning to build ancillary roads for linking remote communities with the main highway. At the same time, these communities would need to be organized, provided with skill training, credit, communications and marketing facilities so that they can produce goods and services required by the vast traffic along the main economic corridor.

Universal Provision of Health, Education and Social Security.

- ★ *Universal Provision of Basic Services Enable Equity, Social Cohesion and Long Term Economic Growth.* The universal provision of health, education and social security can be seen in terms of three dimensions of state, society and economy: (i) These services further the objective of equity which is an integral part of Pakistan's vision and its constitution; (ii) They facilitate social cohesion which is not only essential for long term growth but which also makes the economies and societies more stable and resilient; and (iii) These services also have a direct relationship with high and sustained economic growth through human capital development.

- ★ *The Importance of Quality in Education and Healthcare Services.* Equal emphasis should be given to achieving qualitative targets along with the quantitative ones in the education and health sectors. It is important therefore to not only have universal provision of education and health in terms of quantitative coverage of the population, but have a strategy for achieving high quality in these two fields which are vital for both human development and for economic growth.
- ★ *The Commitment for the Universal Provision of Basic Services and the Question of Affordability.* Many of the countries that have sustained high economic growth on the basis of the universal provision of health, education and social security gave a commitment to provide these services at a time when their per capita incomes were lower than that of Pakistan today. Such a commitment would also create the social and political justification for broadening the tax base. This would help generate the resources required to finance these basic services.

CHAPTER 3 Inclusive and Sustainable Development Through Gender Equality

- ★ *The Need to Mobilize the Potential Workforce of Women for Equitable Growth.* 41 million women in the 15-64 age group, potentially a huge workforce, are not fully mobilised for the growth path the government wants to follow.
- ★ *Education, Participation Rates of Women and Remuneration.* Evidence points to education as an important determinant of women's labour force participation with positive correlation between the level of education and participation rate and remuneration.
- ★ *The Need for a Multi-pronged Strategy to Remove Gender Based Disparity.* A multi-pronged strategy is needed to ensure women's equality, removal of discrimination and disparity, and enabling them formally to participate in the economy. The strategy should aim at addressing educational, nutritional and health needs of girls and women, as well as formulating a comprehensive national policy for women's high skill/high wage employment that includes ownership and access to resources like land, equipment, and finance.
- ★ *The Need to Increase Gender Balance in School Education.* To deal with dropouts at middle and high schools, increase in the number of middle and secondary schools for girls is urgently needed to bring them at par with boys' schools, along with enhanced budgetary allocations for girls' schools. Where possible, primary schools may be upgraded to middle, and middle and secondary schools may be combined to ensure continuity of schooling for those who have entered the school stream. Provision of transport where schools are at a distance from home would take care of that barrier. More girls' schools will open up opportunities of employment for women as teachers.
- ★ *Addressing the Problem of Female Malnutrition and Inadequate Reproductive Healthcare.* To address the issue of female malnutrition and reproductive health needs, operationalize rural and district health centres by equipping them, including transport for emergency obstetric care, medicine, lab tests and family planning advice. Special allocation of budgets for accommodation, transport and security needs of female doctors and staff are essential in rural areas.
- ★ *Remove Gender Based Wage Differentials.* Given the fact that there are wide gendered wage differentials, extension of gender equity concerns to all sectors-- economic, legal, social development/welfare and governance is strongly recommended. Strict implementation of equal wage for equal work to remove discrimination in wages; ensuring compliance with the minimum wage norm; recognition of home based work, other informal work and unpaid family work to ensure legitimate payment and eliminate exploitation of women, provision of skill training for women (traditional, non-traditional, technical, etc.) linked to market needs and employment.
- ★ *Legislation to Protect Women against Violence, Providing Access over Assets and Resources.* Amend discriminatory legislation and initiate new legislation to protect women from violence at home and in public spaces with provision for support systems (shelters, refuges, safe houses, etc.), ensuring access to assets and resources (inheritance, employment organizations, credit and markets), and protection of assets.
- ★ *Develop Synergies and Coordination within the Organizational Structure of Government to Enable Improved Strategies and Design of Public Policy for Gender Equality.* Develop synergies between various existing national and provincial social sector departments, commissions, agencies, women's rights organizations, banks and micro-credit institutions to develop coordinated initiatives for designing interventions, programmes and strategies as well as monitoring systems.
- ★ *Reorient Skill Training and Establish Links with Potential Employers to Increase the Employability of Women After Training.* Reorientation of skill training organizations to design trainings that are aligned to (and respond to) the need of employers and industry to ensure employment for women/girls; establish horizontal links with, businesses and employers, academia and representatives of workers organizations to develop appropriate training programmes.
- ★ *Bringing the Gender Dimension into Data Sources to Enable Gender Equality in Policy Design and Development Programmes.* Strengthen data sources for collecting gender disaggregated data for policy and programme development.
- ★ *Research to Identify and Remove Barriers to Women's Participation in the Economy.* Undertake research to identify reasons for women not availing opportunities like quotas in administrative jobs, and loans and credits, in order to remove other barriers to women's participation in economic and professional activities.
- ★ *Institutional Mechanisms for Developing Women Based Small and Medium Enterprises.* Women's share in business is very limited (10 percent women owned businesses with only five percent offering employment) in order to induct women provision of incentives to women to develop small and medium enterprises is recommended. Incentives can be in the shape of dedicated allocations for lending by financial credit organizations to women in livestock, garments, textiles, government prioritized growth industries, and education, health, crèches and canteens. And government incentives to businesses and corporations to invest in women led businesses; taking affirmative action in the form of quotas in government contracts for women owned businesses.

- ★ *Upgrade the Capacity and Widen the Loan Portfolio of the First Women's Bank.* Strengthen the First Women Bank by upgrading its capacity to develop products to attract highly educated women and professionals to enter the economic mainstream.
- ★ *Fill Reserved Seats in Local Governments at all Tiers.* Women's reserved seats in all provincial local government tiers should be filled at the earliest. Equally important is the provision of direct election of women on reserved seats at all elected tiers of local government.
- ★ *Communication Strategies as Levers of Change.* It is important to recognize that awareness and communication are important levers of change especially for changing rigid mind-sets. Development of a communication strategy is recommended to develop information products for print, sound and electronic media, revision of text books with the objective of addressing inequality, introduction of cultural activities in schools and colleges, valorisation of successful women should be a high priority.

CHAPTER 4 Entrepreneurship Opportunities for the Youth, Women and Minorities through Start-Up Banks: Institutional and Conceptual Features

- ★ *A New Trajectory of Innovation led Inclusive Economic Growth and the key Role of Start-up Banks.* Start-up Banks can play a key role in unleashing the potential for enterprise and innovation amongst the hitherto largely excluded sections of society: the youth, women and minorities. Inclusion of these strata of society into knowledge intensive sectors of entrepreneurship could play a key role in promoting equitable development. Such a process could also help place Pakistan on a new trajectory of innovation based, export led and thereby sustained economic growth.
- ★ *The Critical Need of Start-up Financing in Pakistan.* Conventional financing of commercial banks in Pakistan, which is heavily oriented towards asset-based lending, is not ideal for risk capital required for start-up financing, especially when there are new innovations involved. Pakistan is in critical need of financing for start-ups, especially in the technology sector, in order to keep pace with developments in the rest of the world.
- ★ *New Mechanisms of Start-up Financing.* Public-Private partnerships are required to build new mechanisms of start-up financing in Pakistan and the government of Pakistan can play a key role in this regard. Existing funds can be transformed into providing venture capital but this will require a strategic rethink by the asset management companies, since the latter have constraints in terms of the floors and ceilings on portfolio mix. Consequently, several alternative options have also been proposed, namely a mutual bank, and the use of multi-phased Participation Term Certificates (PTCs) to finance a Business Support Fund (BSF).
- ★ *Support for Value Chains.* Once the operational and administrative aspects of start-up financing have been finalized, a clear mission statement can be adopted, which focuses attention on the type of firms that are to be supported. The goal should be to maximize support for those start-ups which integrate or establish a value chain which will permit sustained economic growth in a very competitive global environment.
- ★ *Incubation Centres at Universities.* All major universities should be encouraged to create incubation centres and then expand them into a nexus involving financial institutions so as to provide credibility to business plans.

CHAPTER 5 Climate Change, Sustainable Development and Resilience

The Specific Aspects of Vulnerability to Climate Change and the Four Dimensions of Sustainable Development in Pakistan

- ★ *Pakistan's High Vulnerability to Climate Change.* Pakistan's economy is more vulnerable to the adverse effects of climate change than most other countries of the world. The main reason for the high degree of vulnerability to climate change is that Pakistan's economy is critically dependent on agriculture, with over 50 percent of the population either directly or indirectly dependent upon this sector. Climate change is adversely affecting both the rate and stability of economic growth through its negative effect on the agriculture sector.
- ★ *The Negative Impact of Climate Change on Rural Poverty and Inequality.* Another important aspect of the increased instability of economic growth associated with climate change is its impact on rural poverty and inequality.
- ★ *Climate Change and the Looming Danger of Food Shortages.* Rising average temperatures in Pakistan are expected to have a direct effect on yields of food grain crops. A large food deficit in Pakistan could place a severe stress on the capacity to import food and there is therefore a danger of food shortages in the years ahead. This indicates the urgent importance of three sets of policy initiatives:
 - iv. Development of heat resistant varieties of food grains and an institutional environment to facilitate widespread adoption of these new seeds.
 - v. Building up a food import emergency fund within the state bank foreign exchange reserves.

- vi. The organizational capacity building and the development of institutions to manage a food crisis if and when it occurs. It is important in this regard to not only establish food silos in every tehsil, but to have procedures in place to release food supplies and to entitle the local population to access it during a crisis.
- ★ *Four Dimensions of Sustainable Development.* Sustainable development in Pakistan would require four dimensions of inclusive development to be built into policy making and public action at the macro as well as the micro levels and at every tier of government:
 - v. Inter-personal equity to ensure growth sustainability through inclusion of the middle classes and the poor in the process of investment, productivity increase and innovation.
 - vi. Systematic inclusion of women, the youth and those social groups that are discriminated against in society.
 - vii. Inter-regional equity for a regionally broad based growth process so that the innovation and enterprise of people in the backward districts can be brought into play to achieve full utilization of the creative potential of the people.
 - viii. Protection of the environment; minimizing the adverse impact of climate related disasters on human society and physical infrastructure; and building resilience so that communities and regions impacted by climate change and associated extreme events can resist and recover from them quickly and efficiently.

Policy Gaps and Recommendations

- ★ *Unclear Division of Responsibilities between Different Tiers of Government.* Implementation of climate change related policies is impeded by the fact that the roles at different tiers of the government are not clearly defined. For example, it is the responsibility of the federal government to devise and implement new policies in line with international treaties, but majority of the departments through which these policies can be implemented are under the control of the provincial governments.
- ★ *Institutional Mechanisms for Increasing Inter-Provincial Coordination.* There is need to establish institutional mechanisms for inter-provincial co-ordination on a continuous basis during the process of implementation of specific environment related projects with cross provincial implications.
- ★ *Building Capacities of Provincial Governments for Negotiating Technology Transfer Deals with Multinational Corporations and Foreign Governments.* Capacity building at the provincial government level is also required to be able to negotiate and establish contracts that adequately protect Pakistan's interests in the case of complex technology transfer agreements with Multinational Corporations, governments of advanced industrial countries and multi-lateral agencies.
- ★ *Capacity Building for the Adoption of New Technologies.* There is a need for organizational capacity building and institutional mechanisms for research, development, dissemination and adoption of technologies for both adaptation and resilience.

Climate Change and Regional Cooperation

- ★ *The Importance of Regional Cooperation.* Pakistan's ecosystem is part of the integrated ecology of South Asia and therefore a significant element of adaptation and mitigation measures is the cooperation between the states of South Asia.
- ★ *Key Climate related Challenges faced by South Asia.* The nature of inter-dependence and the four key challenges of climate change in South Asia:
 - i. Monsoons, glacial melt and vulnerability of the region.
 - ii. Rising temperatures and food security in South Asia.
 - iii. Rising sea levels, salinization of coastal agriculture plains and internal migration in South Asia.
 - iv. Negative effects of climate change on human health.
- ★ *Key Areas of Cooperation.* Forms of South Asian cooperation to manage the adverse effects of climate change:
 - i. Managing internal migration.
 - ii. Cooperation for research, development and dissemination of heat and saline resistant varieties of food grain.
 - iii. Establishment of a South Asian Food Security Fund (FSF).
 - iv. Storage and transportation of buffer stocks of food.
 - v. Cooperation between upper and lower riparian states to reduce the potential for inter-state tensions and improve adaptation to climate change.
- ★ *The Indus Basin Treaty and Cooperation to Face Climate Change.* The Indus Basin Treaty between India and Pakistan has stood the test of time so far in water sharing over the last five decades. Now in the face of climate change, the activation of some of the unused provisions of the treaty as well as additional protocols need to be established for adaptation to climate change in a peaceful and mutually beneficial manner:
 - vi. An institutional and organizational strengthening of the Indus Waters Commission is required to address the challenges of the sustainable and peaceful use of Indus waters.
 - vii. Strengthening the dispute resolution capabilities of the Indus Water Commission by adding more Assistant Commissioners and professional staff with the requisite expertise.
 - viii. There is a need for additional co-operation procedures because the Treaty has no provision on the response by Pakistan and India to reduced river flows associated with climate change.
 - ix. Additional protocols need to be agreed upon between India and Pakistan to prevent the deposit of industrial waste, toxic chemicals, heavy metals and other pollutants into the surface and ground water irrigation systems.

- x. There is a need to operationalize and strengthen Articles VI and VII of the Indus Basin Treaty. These Articles stipulate the "exchange of data" and suggest "Future Cooperation" respectively, between India and Pakistan on water sharing issues.

CHAPTER 6 A Policy Framework for Addressing Pakistan's Water Crisis

Pakistan's Water Challenges

- ★ *Importance of Irrigation Infrastructure for the Economy and Society of Pakistan.* The efficiency of irrigation and effective maintenance of the physical irrigation infrastructure is crucial for the agriculture sector and thus for Pakistan's economy and society.
- ★ *Rapid Decline in Per Capita Water Availability.* Water availability per capita in Pakistan has declined to less than 1100 cubic meters per person per year now, compared to 5,000 cubic meters per person per year in 1951.
- ★ *Maintenance and Replacement of Cost of Water Infrastructure.* At least USD 600 million annually are required for maintenance of the water infrastructure asset which has a replacement cost of about USD 60 billion.
- ★ *Low Irrigation Efficiency and Productivity of Water.* The overall irrigation efficiency in Pakistan is only 36 percent and the productivity of water (water use efficiency) is among the lowest in the world.
- ★ *Increased Dependence on Groundwater and its Consequences.* Pakistan is the 3rd largest groundwater consumer in the world, accounting for 9 percent of the global withdrawals and 5.2 million ha area under groundwater irrigation (4.6 percent of the global groundwater-fed cropland). Due to the diminishing surface water supplies, reliance on groundwater has reached to 70 percent in many canal water deficient areas. More than 70 percent of the private tubewells pump saline and sodic water, which is creating large scale salinity problems. Pakistan is now home to probably the worst salinity problem in the world.

Policy Guidelines for Addressing the Water Crisis

- ★ *Water as Capital.* In order to increase agricultural production and ensure sustainability of irrigated agriculture, the overall strategy should be to think of water as capital and hence develop and at the same time to improve the efficiency of "water capital".
- ★ *The Need for a Comprehensive Plan for the Rehabilitation and Management of Water Infrastructure.* The designated amounts for repair and maintenance of water infrastructure are only 5 to 10 percent of the required amount. Due to deferred maintenance and a lack of rehabilitation, the delivery capacity of the canal system is now estimated to be 30 percent lower than the designed capacity. Pakistan needs to develop a comprehensive plan for the rehabilitation and management of its water infrastructure. This not only requires allocation and timely disbursement of required financial resources but also the development of an efficient institutional framework as well as organizational capacity.
- ★ *Increase the Canal Water Charges and Improve the Recovery System.* Existing canal water charges are inconsistent with the economic benefits gained by the farmers. Therefore, an increase in the current abiana rates and improvements in the recovery system are needed to enable Irrigation Departments to improve maintenance of the water infrastructure for increased water supply reliability.
- ★ *The Imperative of Building Large Dams.* Currently, Pakistan is storing only 15 percent of its annual river flow, which is far less than required to ensure sustainability of irrigated agriculture. The importance of large dams should not be ignored as they are imperative for sustained national economic growth both from the point of view of food as well as energy security. Development of small dams is also important but is not a substitute of building large dams which are usually equivalent to several hundred small dams in terms of their storage and electricity generation capacities.
- ★ *Revise the Water Allocation Criteria to Improve Salinity Management.* To improve salinity management in the canal command areas where head and tail ends of the same system have varying soil and groundwater qualities, existing water allocation criteria should be revisited. These decisions have to be made at two levels i.e. system level and the watercourse level. Canal water allocations should be made considering cropping patterns, groundwater quality and soil salinity levels.
- ★ *Bring Equity and Efficiency in Canal Water Distribution.* The current rotational irrigation (warabandi) system is based on the principle of equal water allocation for all farmers regardless of their location in the canal system, which discriminates against tail-end farmers. Consequently, head-end farmers usually have higher crop yields than farmers located at the tail-end of the canal system.
- ★ *On-Farm Ponds for Water Storage and Rainwater Harvesting.* For efficient use of canal water, tail end farmers should be encouraged to construct on-farm ponds to store canal water and use it through high efficiency irrigation systems to increase water use efficiency. These ponds can also be used for rainwater harvesting.
- ★ *Change in Cropping Patterns and Water Demand Management.* Pakistan also needs to focus on demand management for water. It is time to review whether we should continue to grow rice for export or instead use this water for other crops where the country has a comparative advantage. Adoption of other irrigation water strategies such as alternate wet and dry irrigation (AWADI) used for rice can also help save groundwater. Direct seeded rice requires 23 percent less irrigation water as compared to traditional transplanted rice under Pakistani conditions. Similarly, strategies should be developed to replace sugarcane with low water demanding and high market value crops.
- ★ *Improve the Water Use Efficiency through the use of Water Saving Technologies.* Despite acute water shortages, irrigation applications have no relevance to actual crop water requirements. Using water-saving technologies, such as piped water and pressurized micro-irrigation to replace flood irrigation are the widely accepted means of promoting sustainable groundwater use. However, large-scale adoption of pressurized micro-irrigation is limited due to poor financial resources of smallholder farmers and

therefore new policies are needed to increase credit facilities and technical support to farmers.

- ★ *Adoption of High Efficiency Irrigation Systems to Reduce Wastage of Water.* Farmers should be incentivized to install High Efficiency Irrigation Systems (HEIS) such as drip and sprinkler irrigation systems; laser based precision land leveling to reduce water wastage on the farm; zero tillage, bed and furrow planting.
- ★ *Incentivize the Growth of High Value Added Crops.* Farmers should be given incentives to grow crops which have a relatively lower water requirement and higher value with export potential such as fruits, vegetables, pulses, sunflower, decorative flowers, edible oils, spices, medicinal herbs.
- ★ *Introduce Bio-Saline Agriculture for Increasing Productivity of Marginal Lands.* Significant progress has been made in the field of bio saline agriculture which provides innovative techniques of managing marginal land and water areas. Salt-tolerant forage plants are efficient in producing biomass of high nutrient value. Introduction of bio saline agriculture in marginal areas could be a game changer for the livelihood of rural communities living in these areas.
- ★ *Indus Basin Irrigation System (IBIS) and the Imperative of Adaptation to Climate Change.* The success of any changes to the IBIS will also depend on how they can adapt to climate change.
 - Due to the heavy dependence of IBIS on the Himalayan glaciers, changes in climate or the resulting accumulation of snow and ablation of glaciers in the upper reaches of the river could have serious consequences for the livelihoods not only of those engaged in the agriculture sector but for the economy as a whole.
 - It is expected that due to increased variability of monsoon and winter rains and the loss of natural reservoirs caused by glacier melting due to climate change, the inter-annual and intra-annual variability of river flows will increase which may cause serious floods and droughts in future as well.
 - In order to avoid serious losses, Pakistan needs to work on both structural and non-structural measures for flood protection and raise storage capacity to cope with the anticipated future droughts.
 - Pakistan needs to enhance forecasting and early warning capacity for floods and droughts which is currently very weak. Restoration of existing wetlands, proper planning of urban development, improving preparedness and relief services and increasing coordination between different provincial and federal departments are some of the measures that can significantly improve Pakistan's capacity to protect and manage droughts and floods in the country.

CHAPTER 7 Institutional Constraints in the Utilization of Pakistan's Hydro-Power Potential

- ★ *Hydroelectric Potential of Pakistan.* Pakistan has abundant hydroelectric potential of about 100,000 MW. A strategic intervention for facilitating sustained economic growth is to accelerate the development of hydro power projects which would generate abundant and clean electricity and at the same time provide storage for irrigation purposes.
- ★ *The Main Reason of Water and Power Crisis.* The water and power crises have one major reason: No dams have been built since the last 41 years. The generation mix of hydel/thermal has shifted from about 70:30 in the 1960s to 37:63 now. The shift in the composition of electricity generation towards thermal sources has not only substantially increased the cost of power generation but has also increased greenhouse gas emissions.

Siltation and Hydropower

- ★ *Decreasing Reservoir Capacity due to Sedimentation.* It is estimated that the Indus and its tributaries carry about 0.35 MAF (0.435 BCM) of sediment annually of which 60 percent remains in the system where it is deposited in the reservoirs, canals and irrigation fields. The on-line storages had been estimated to lose a total gross storage capacity of about 5.9 MAF till year 2010. The live storage capacity of Tarbela and Mangla reservoirs was estimated to have reduced by 20 percent by 2000 and is likely to reduce by 33 percent by 2020 due to resulting reservoir sedimentation.
- ★ *The Problem of Soil Erosion in Watershed Areas.* Over-sedimentation of the main reservoirs is a matter of serious concern and measures for replacement of lost storage will have to be taken. The rate of soil erosion in the watershed areas is accelerating mainly due to overgrazing, deforestation, poor land use practices, cultivation of marginal lands enforced by the rapid population growth, and lack of alternative sources of fuel wood as well as economic opportunities in the mountain communities.
- ★ *Reduce Deforestation to Decrease Soil Erosion.* The rapid deforestation estimated at 7000 - 9000 ha annually be strictly checked in order to decrease soil erosion. About 88 percent of deforestation is due to tree cutting for fuel. Very serious consideration has to be given to providing alternative and cheap energy for cooking and heating etc.
- ★ *Construction of an Upstream Dam to Reduce Siltation in Tarbela Dam.* An important policy initiative that should no longer be postponed is the urgent construction of an upstream dam, necessarily the Basha dam. This can possibly increase the life of the Tarbela dam by 30 to 40 years.

CHAPTER 8 Local Government, Inclusive and Sustainable Development

Devolution, Democracy and Inclusive Development

- ★ *The Imperative of Decentralization.* As the societies and economies become more complex and the size and responsibilities of governments increase, centralized governance becomes both inefficient as well as distant from the people, hence the importance of decentralization as a means of participatory, transparent and efficient government.
- ★ *Local Governments, Elite Capture and Inefficiency:* Rural society in many areas of Pakistan has asymmetric power structures at the local level where large and influential landlords can form alliances with revenue officials, police officials, local administration and even armed gangs of criminals to exercise power. This can result in the capture of local government by the elites for the purposes of rent seeking. The following are some of the key factors which contribute towards the phenomenon of elite capture in Pakistan:
 - The tendency to perpetuate dynasties in Pakistani politics which also affects local governments.
 - Weak organizational structure of the political parties at the grassroots levels
 - Patron-Client vote blocks
- ★ *Constitutional Requirement to Establish Local Governments.* With the enactment of Article 140-A through the 18th Constitutional Amendment, local governments now have constitutional protection in Pakistan. The Article 140-A mandates, that “each province shall, by law, establish a local government system and devolve political, administrative and financial responsibility and authority to the elected representatives of the local government”.
- ★ *Recognize Local Government as a Separate Tier of Government with its Specific set of Core Functions.* It is important to make new laws specifying the local governments as a separate (third) tier of government with its unique set of powers and distinct from the federal and provincial governments. An Act could be passed in the National Assembly which recognizes the local governments as a third tier of government in Pakistan with political, administrative and financial powers. Provinces should be allowed to design and implement specific features of the institutional and organizational structure of the local governments and they must be able to assign any new functions to these governments. But the provincial governments should not have the powers to alter the basic framework of local governments or to recentralize any of the core functions assigned to these governments.
- ★ *Improve the Resource Transfer Mechanisms to Local Governments.* The criterion for the transfer of resources from the provincial governments to the local governments ought to be similar to the one which is used for the transfer of resources from the federal government to the provinces. A formula based allocation from the provincial to the local governments could be considered to minimize discretion.
- ★ *Improving the Selection Process and Mechanism for Elections on the Reserve Seats.* The legal provision of a minimum percentage of reserved seats for the marginalized sections of society (e.g. women, labourers and peasants) is a commendable legislation that will facilitate the building of an inclusive democracy and pluralist governance structures at the local level. However, it is important to ensure that the selection process of candidates and the elections on these seats are not taken over by the local elites. In order to increase the transparency in the whole process, direct elections could be held for the reserved seats as in the case of regular local government representatives.
- ★ *Capacity Building of Local Governments.* Special training institutes may be established in every district (with branches in each tehsil within the district) for the elected local government officials. These institutes, comprising technical experts in various fields, could have the following functions:
 - Capacity building of local governments in terms of governance, organizational and institutional development, and management of resources at the local level.
 - Facilitate and train the local government officials in the identification of new projects, their implementation and evaluation.
 - Train local government officials to build resilience against climate change.
 - Linkages could be established between the universities in every district and the local government training institutes there, so that new research can be conducted which addresses the specific problems of a particular district in the areas of governance, institutional structure, resource management, project planning and climate change.
- ★ *Building and Facilitating the Organizations of the Poor.* To avoid elite capture of local government, it is necessary to develop community organizations of the poor at the village, union council, tehsil and district levels and establish institutionalized links with the corresponding tiers of local government. This is to enable the deprived sections of rural society to have a voice on a systematic basis, in the process of local level decision making which affects their lives.



UN
DP

Pakistan

United Nations Development Programme

Development Policy Unit

4th Floor, Serena Business Complex, Khayaban-e-Suharwardy, Sector G-5/1

P.O. Box 1051, Islamabad, Pakistan

www.pk.undp.org