



**ASIA PACIFIC REGIONAL INITIATIVE ON TRADE,  
ECONOMIC GOVERNANCE, AND HUMAN DEVELOPMENT**

**TRADE IN ENVIRONMENTAL SERVICES AND HUMAN DEVELOPMENT  
COUNTRY CASE STUDY -- PAKISTAN**

**Syed Ayub Qutub  
Pakistan Institute for Environment-Development Action Research\*  
Islamabad**

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\* The opinions expressed in this paper do not necessarily reflect those of UNDP. The sharing of this paper with the external audience is aimed at generating constructive debates, and does not constitute an endorsement by UNDP or the institutions of the UN system.

## **Preface**

### **Trade in Environmental Services and Human Development<sup>1</sup>**

The UNDP Asia Pacific Regional Initiative on Trade, Economic Governance and Human Development was conceived in 2000 in the aftermath of the collapse of the WTO Seattle Ministerial Conference which was unable to launch a new round of trade negotiations in the face of new initiatives by developing nations. The fundamental motivation is that multilateral rules should craft globalization, so that it provides real benefits for poor people, rather than exclude them. To this end, the Asia Trade Initiative is striving to advance human development in the region by promoting greater understanding on its interface with trade issues. This involves conducting comprehensive analyses of the far-reaching impacts of trade agreements on the ability of developing countries to shape national human development outcomes. By facilitating debates among governments and civil society, and introducing human development considerations into the national and regional debates on trade issues, it is hoped to strengthen the capacities of the weaker and more vulnerable stakeholders to defend and articulate their interests. The main objective, thus, is that human development considerations be more fully taken into account in negotiating positions and in the ensuing trade agreements.

The Asia Trade Initiative became operational in the second semester of 2002. Its first step was to provide more substance to the link between trade and human development by conducting studies at the country level and drawing these together in synthesis documents, "Technical Support Documents" (TSDs). The subjects selected for study are those items on the Doha Development Agenda, where any new international commitments or intensification of multilateral disciplines could affect the human development, for better or for worse, of many poorer and more vulnerable people in Asia. Another criterion has been the existence of parallel efforts in UN bodies aimed at human development goals. The TSDs have been prepared in a consultative manner with reliance on specific grassroots evidence. A conscientious effort is made to examine the impact of possible outcomes of trade negotiations on the broad human development objectives of empowerment, equity, productivity, sustainability to ultimately expand people's choices, and their capabilities to lead the kind of life they have reason to choose and value.

This paper, part of a series of country studies on trade in environmental services, is aimed at stimulating a more intensive debate on trade and human development issues in Asia, in the period leading up to the 5<sup>th</sup> WTO Ministerial Conference to be held in Cancun, Mexico, in September of this year, and later. The following summarizes the trend and growth of trade in environmental services, within the context of multilateral negotiations and beyond, and their interface with select human development objectives.

- **Environmental Goods and Services are directly linked with the core end of human development which is to improve well-being and quality of human life.** Millions of people living in absolute poverty lack access to and use of fresh drinking water and sanitation. Globally, some 2.4 billion people lack access to basic sanitation, and 1.1 billion to safe drinking water. In fact, over 180 countries have endorsed the Millennium Development Goals to halve, by the year 2015, the proportion of people without sustainable access to safe drinking water, and improve the lives of 100 million slum dwellers, while also committing to improve access to basic sanitation and reduce atmospheric pollution. Disposal of solid waste and hazardous waste, effluent treatment, contamination of various sources of water, and also preservation of rich biological habitats are broad environmental concerns with a bearing on human health, and in turn people's capability to lead the kind of life they value. More indirectly, environmental goods and services also constitute an increasing share of national economic activity which means that national policies on growth-generation, fiscal allocations, and job creation in this growing sector will have an increasing potential to promote human development.

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<sup>1</sup> Some ideas draw on, "Energy and Environmental Services: Negotiating Objectives and Development Priorities", ed., S. Zarrilli, UNCTAD, 2003

- The capacities to address these concerns are extremely divergent, necessitating roles for international trade and resource transfer.** The global environmental industry evolved in the advanced countries largely in response to stringent environmental regulations as their per capita incomes grew. However, the rate of growth of this industry in the developed countries is declining. The developing countries, namely the transition economies and East Asia, on the other hand, are witnessing a surge in new demands, at annual rates averaging 10% or more for key environmental services such as water delivery, wastewater treatment, pollution control, and solid waste and hazardous waste disposal as countries struggle to cope with rapid population increases and urbanisation, while simultaneously facing weak fiscal, institutional and regulatory apparatus. By 2010, this industry is expected to reach over \$600 billion in revenues. There is thus great scope for the expertise and wealth of the rich countries to be transferred in aid or trade to the new markets. The reduction or elimination of tariff and non-tariff barriers to environmental goods and services has also been singled out for priority in the WTO Doha Ministerial Declaration. But because these services have traditionally been under state monopolies, any liberalisation is seen as paving the way for profit-seeking private investment and control from home and abroad, countries are exercising caution in assessing the implications of liberalization for access, price affordability, quality assurance, especially to the less well-off. While Asian countries vary in their readiness to meet these growing challenges, most accept in principle that there is an inevitable role for non-state, even foreign entities, in providing environmental services. In China, the world's biggest potential market, its Ministry of Water Resources puts the cost of water and sanitation related infrastructure at US\$ 26 billion, ending 2005.<sup>2</sup> In poorer countries like Pakistan, there simply is a void in the formal provision (the informal sector might be significant in solid waste disposal, etc.) of many of these services which can only be filled with external resources. Thailand too is keen to welcome foreign investment in sectors like hazardous waste management.
- The WTO General Agreement on Trade in Services (GATS) offers a narrow framework to negotiate trade and investment in environmental services.** The definition of environmental services in GATS draws on a decade-old list which only includes sewage, refuse disposal, sanitation, and an 'other' basket category including cleaning of exhaust gases, noise abatement and landscape protection services. This classification has been criticised for being narrow, and not reflecting market realities, and for focusing on end of pipe solutions that ignore pollution prevention and resource management services; it also excludes the design, R&D, engineering, analytical and construction services essential to core environmental services. While GATS does not require privatisation or deregulation of any service, some developed countries have submitted requests for such broad commitments from developing countries. In proposing to include a new sub-sector (Water for Human Use and Wasterwater Management) by re-classifying environmental services in GATS, the EU is said to have prepared requests for 72 countries to open up their water distribution.<sup>3</sup> Separately, in China, following its WTO accession in 2001, giant multinational companies have already secured several high-profile contracts in environmental services. In WTO discussions, developing countries like India have made an export case for their own environment-related goods and services saying that measures in rich countries hamper market access (largely through standards and certification requirements than high tariffs ) of environmentally-preferable products (EPPs), those that often draw on traditional knowledge and processes. These countries also note that they do have the capacity to become exporters of select environmental goods and services, such as energy-saving consumer goods, pollution detecting instruments, and renewable energy technologies. To date, some 50 WTO members have made commitments on environmental services in the context of GATS, but only 2 are Asian. It should also be noted by developing countries that because WTO negotiations are conducted on the basis of reciprocity and as GATS commitments in environmental services are coveted, they should only be traded off only for meaningful reciprocal commitments that serve to promote human development by enhancing domestic capacity and technology transfer, or improve access for labor movement, agriculture and fisheries exports.

<sup>2</sup> Far Eastern Economic Review, May 15, 2003, p 27.

<sup>3</sup> Whose Development Agenda: Analysis of EU's GATS Requests, World Development Movement, London, April 2003

- But trade in environmental services is complicated by implications for large-scale, direct foreign investment and ownership of assets.** Unlike many service sectors, the supply of environmental services involves large investments, which become profitable over long periods of time, thus making effective control a major factor in investment. As a result, Mode 3 (commercial presence) restrictions are viewed as the most important by suppliers and exporting countries have an interest in pressing for privatisation of such services in developing countries. Such privatizations have also been included in packages of conditionalities often put forth to countries by the Bretton Woods institutions. The most controversial of these involves collection, purification and distribution of water. Civil society organizations are wary of such proposals (as expressed during the G-8 Summit in May 2003, and also the Third World Water Forum in Kyoto, March 2003) for their perceived human development implications on access and affordability by the poor -- although there may be gains on efficiency, quality, transfer of technology, and even freeing up of public resources for more urgent human development objectives like education and health. Since 2002, China has allowed in several multinational companies -- Veolia recently signed a 50-year contract worth nearly 250 million USD in Shanghai to treat, distribution, and collect fees for water. In general, however, there is secrecy in GATS negotiations, and an overwhelming lack of understanding of WTO provisions; discussions on the assessment of proposals and implications are non-transparent and limited to a narrow group of specialised civil servants and negotiators. Even when projects may be badly needed (for illustration, one sixth of China's 668 cities are said to suffer from "serious" water shortages) and make economic sense, part of the general public's ex ante hostility to such schemes emanate from their desire to have these processes subjected to broad civic scrutiny prior to making sweeping, multigenerational commitments.
- Participatory, cost-effective, self mobilized indigenous models of community managed environmental services deserve notice and replication.** Discussions on foreign investment, and sheer national helplessness, often overshadow "alternative" success models of low-cost service delivery to the poor. Pakistan's Orangi Pilot Project (OPP), for instance, has been working since 1980 to support people's efforts in upgrading Orangi township, a low-income informal settlement with over 1 million residents in Karachi (a city whose Water and Sewerage Board does not reach the informal settlements that contain 60% of the city's population). The OPP model of sanitation comprises of internal development such as latrines, lane sewer and collector sewer at neighbourhood level. It has demonstrated that communities can finance, manage and maintain internal development, contributing \$1.5 million, constructing 1.5 million running feet of sewerage lines and sanitary pour-flush latrines in 90,000 houses. The OPP model has been replicated in 42 settlements in Karachi and in seven cities across Pakistan with varying degrees of success. The human development notions of empowerment, sustainability, as well as equity in access may often be best served by low-cost community-led initiatives such as these, but their replication might be limited by their context specificity. Alternative models of successful, co-operative non-profit water delivery systems also exist elsewhere, in Porto Alegre in Brazil, or Santa Cruz in Bolivia, for instance. More broadly, the recognition of the importance of civic engagement and participation in debates on reforming utilities is growing, especially when deemed sensitive to consumer interests. In this vein, Thailand's new constitution, in its Articles 45 and 46, requires stakeholder consultations prior to project undertakings that might affect livelihoods or the environment.
- Asian countries need to frame their strategic responses so as to precede liberalisation by enhanced domestic legislative, regulatory and institutional infrastructure.** The daunting new demands for services and overwhelming fiscal shortage means that Asian countries will inevitably need to draw on foreign technology and capital to meet these new needs. The question, thus, is not whether to open up, but when, how fast, and with what kind of policy safeguards in place. But countries need to retain their prerogative to decide the sequencing and nature of roles, policies and capacities for the state and non-state entities. Foremost, governments need to adopt environmental laws and regulatory regimes to strengthen management and oversight of environmental services. With domestic capacity to regulate (on pollution, wastewater, etc.) responses to request for liberalisation commitments ought to retain policy options that ensure that the poor are not penalised by aspects of liberalization, and that adequate

opportunity is provided for the development of national capacities, including transfer of environmentally sound technologies. Other measures for national preparedness include, clarifying definitional issues and maintaining information systems, strengthening negotiation capabilities, and gradually encouraging private sector involvement in a manner that does not compromise human development objectives of equity and sustainability.

- **Access to and affordability of some environmental services are to be recognized as inviolable human rights.** To the extent that liberalisation can promote efficiency, halt or reverse environmental degradation, and ensure increased access to services, human development benefits would be high. Often, privatized entities replace grossly mismanaged and failed public entities, and in principle, make up for expanded service as well as reasonable water tariff through cost-cutting and efficiency. But in practice, the record has been mixed globally, often leading to political disturbances, and limiting service provision to higher income groups. From a human development perspective, thus, along with the economic rationale of cost reduction and extended coverage, the twin goals of equity in access to services and respect of human rights are paramount. There is a strong recognition in many countries that water, for instance, is a public good, and as recognised during the World Summit on Sustainable Development in South Africa in 2002, access to clean water is a human right which ought to be viewed in conjunction with similar rights to basic food and adequate housing. This matter has been discussed in fora outside the WTO such as the UN High Commission for Human Rights where it has been stated that assessments should be conducted to understand the impact of trade policies on human rights. The key point is that states have, over the years, undertaken many international human rights treaty obligations which need to be respected by WTO members during their negotiations and while implementing commitments to liberalise trade in managing air, water, and waste.

*Asia Trade Initiative.*

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## **List of abbreviations and acronyms used**

### *General and technical*

BOD	Biological Oxygen Demand
CETP	Combined Effluent Treatment Plant
COD	Chemical Oxygen Demand
CP	Cleaner Production
CPC	Central Product Classification (UN)
EHS	Environment, Health and Safety
ES	Environmental Services
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HD	Human Development
HVA	Higher Value-Added
IT	Information Technologies
JPA, WSSD	Johannesburg Plan of Action, World Summit on Sustainable Development
MA	Market Access
MDG	Millennium Development Goals
NEQS	National Environmental Quality Standards
NT	National Treatment
PEPA-97	Pakistan Environmental Protection Act – 1997
PM <sub>10</sub>	Particulate Matter less than 10 microns
PPA	Participatory Poverty Assessment
PRSP	Poverty Reduction Strategy Paper
R&D	Research & Development
Rs.	(Pakistan) Rupees
SIA	Social Impact Assessment
SMART	Self-Monitoring and Reporting Tool
T&C	Textiles and Clothing
TSS	Total Suspended Solids

### *Organisational and institutional*

ABL	Allied Bank (Pakistan) Limited
ACHR	Asian Coalition for Housing Rights (Bangkok)
ADB	Asian Development Bank
APTPMA	All Pakistan Textiles Processing Mills Association
ARL	Attock Refinery Limited
ATI	Asia Trade Initiative
ATC	Agreement on Textiles and Clothing
BMS	Bristol-Myers Squibb Pakistan (Pvt.) Ltd.
BOI	Board of Investment (GoP)
CRPRID	Centre for Research in Poverty Reduction and Income Distribution (Islamabad)
CPP	Cleaner Production Program
DFID	Department for International Development (UK)

EC	European Commission
EPD	Environment Protection Department (of Punjab); formerly Punjab EPA
ESCAP	Economic & Social Commission for Asia and the Pacific (of the UN)
EU	European Union
FATA	Federally Administered Tribal Areas
FPCCI	Federation of Pakistan Chambers of Commerce and Industry
GATS	General Agreement on Trade in Services
GoP	Government of Pakistan
KAPCO	Kot Addu Power Company Limited
KWSB	Karachi Water and Sewerage Board
IEEM	Industrial Efficiency and Environmental Management Project (ADB/NORAD)
ISO	International Standards Organisation
JICA	Japan International Cooperation Agency
MCB	Muslim Commercial Bank (Pakistan)
MELGRD	Ministry of Environment, Local Government and Rural Development
MHHDC	Mahbubul Haq Human Development Centre
NA	Northern Areas
NEAP	National Environmental Action Plan
NEAP-SP	National Environmental Action Plan – Support Programme
NGO	Non Government Organisation
NORAD	Norwegian Agency for Development
NWFP	North Western Frontier Province
OPP-RTI	Orangi Pilot Project – Research and Training Institute
PARC	Pakistan Agriculture Research Council
PC	Privatisation Commission
PEPA	Pakistan Environment Protection Agency
PIA	Pakistan International Airlines
PSST	Pakistan Institute of Sugar Technologists
PTA	Pakistan Tanners Association
SDPI	Sustainable Development Policy Institute
SPDC	Social Policy and Development Centre, Karachi
UBL	United Bank (Pakistan) Limited
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme (in Pakistan)
UNICEF	United Nations Children’s Fund
UNIDO	United Nations Industrial Development Organisation
URC	Urban Resource Centre (Karachi)
US-EPA	United States Environmental Protection Agency
WAPDA	Water and Power Development Authority
WB	World Bank
WHO	World Health Organisation
WTO	World Trade Organisation

## 1. Introduction

This Study on Pakistan has been prepared for the Asia Pacific Regional Initiative on Trade, Economic Governance and Human Development (Asia Trade Initiative). The mission of the ATI is to study and research a range of trade-related topics in connection with the on-going multi-lateral negotiations from an Asian perspective, to facilitate debate in the region between and among governments and civil society organisations, and to use the results of the studies to inform and influence pro-poor policies.

This Study is part of a three-country study assessing the human development implications of liberalising trade and investment in the environmental services (ES) sector under the WTO/GATS framework. Pakistan, like most countries of Asia, has received negotiating requests for commitments to liberalise trade and investment in environmental services. The main question to be addressed is how full or partial compliance with the requests for opening up the sector for foreign participation could affect the human development (HD) objectives of the country.

During an orientation meeting of consultants on January 20-21, 2003 in Bangkok, Thailand, ideas were shared on the relevant issues, the terms of reference were clarified and Study outline finalised as a broad guide. Following the guidelines, this Study has four main sections: Pakistan Sustainable Development Context, Connections between ES and HD, ES Country Profile, ES under GATS, and a short concluding section on Future Policy Implications from a HD Perspective.

It was planned to produce this Study relying on secondary sources. During February 2003, library and Internet searches provided the requisite information for a number of sections. In the absence of printed or grey literature on key topics, such as Pakistan's planned response to the commitment requests and priorities for the environmental services sector, it became essential to interview relevant government officials, environmental consultants, and selected staff of firms that had availed of international and national environmental services.

I am grateful to Mr. Qasim Niaz, Joint Secretary in charge of the WTO Wing and Mr. Habib Jilani, Section Officer, GATS, WTO Wing, Ministry of Commerce for providing their unofficial verbal and written responses to the Requests. I am also grateful to Mr. Javed Ali Khan, Director General (Environment), Ministry of Environment, Local Government & Rural Development, and Mr. Asif Shuja Khan, Director General, Pakistan Environmental Protection Agency, for sharing their views on government environmental sector priorities and on progress in key projects.

Mr. Azher Uddin Khan, Managing Director, National Environmental Consulting (Private) Limited prepared a detailed background note comparing the processes of setting up the combined effluent treatment plants for the leather industry clusters at Kasur and Korangi, Karachi. I am thankful to him for sharing his insider knowledge of the technical, economic and institutional issues.

Mr. Umar Farooq Hashmi, EHS Manager, Bristol-Myers Squibb (BMS) Pakistan, provided a note for this Study on the on-going process of installing a wastewater treatment plant at the BMS facility at Korangi, Karachi. I am grateful to him for sharing the process of corporate decision-making on environmental service supplies. His suggestions for improving the provision of environmental services are based on experiential learning at BMS and have wider application as more multinational and national firms proceed to install cleaner production and pollution abatement equipment.

After synthesis with the other country studies on Thailand and China/Hong Kong, the Study is intended to stimulate a broader debate involving NGOs, the private sector, parliamentarians, and academia. I have tried to understand and communicate the complex linkages between Human Development and Environmental Services in Pakistan in a clear way. The limitations in both aspects are entirely my own.

## 2. Pakistan sustainable development context

### 2.1. Development indicators and trends

#### 2.1.1. Poverty levels

About one-third of the population in Pakistan is poor in terms of income for food and other basic requirements. The incidence of poverty is significantly higher in the rural areas. There is general consensus that poverty in Pakistan declined during the 1970s owing growth in the outputs of major crops, foreign aid and investment. Poverty further declined during the 1980s mainly owing growth in home remittances (which equalled as much as 10 percent of GDP in 1982-83) and good cotton crops. However, the 1990s witnessed a rapid resurgence of poverty owing decline in investment, fall in remittances and foreign aid, faltering export prices and increasing debt service payments<sup>4</sup>.

Table 1: Trends in Poverty: Head Count

Years	Pakistan	Urban	Rural	Balochistan	NWFP	Punjab	Sindh
1984-85	24.6	21.1	25.9				
1987-88	17.3	15.0	18.3				
1990-91	22.1	18.6	23.6				
1996-97	31.0	27.0	32.0	49	23	30	27
1998-99	32.6	25.9	34.6				
1999-00	33.5						

Source: Pakistan Economic Survey (1999 –2000); also in United Nations Country Team, “Pakistan Common Country Assessment”, p.46, 2003

Over the last 20 years, the share in income of the poorest 20% has further declined while that of the richest 20% in rural areas has further increased. There are also substantial inter- and intra-provincial disparities in per capita incomes. Poverty is

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<sup>4</sup> United Nations Country Team, “Pakistan Common Country Assessment” Islamabad, p.17, 2003

most evident in the regions that are deficient in natural resources, physical and social infrastructure. They include the southern part of NWFP, southern Punjab, most of Balochistan, rural Sindh, and all peripheral districts of the Northern Areas.

Within the resource rich areas, the poor generally live in informal settlements that are largely un-serviced by public utilities. They also live on the margins of land owned by large landholders, comprising traditional landlords, industrialists or military managers. In the urban context, many of the poor live near heavily polluting factories, dumps and hazardous waste sites, typically located in the urban fringe or in congested and overcrowded old city centres.

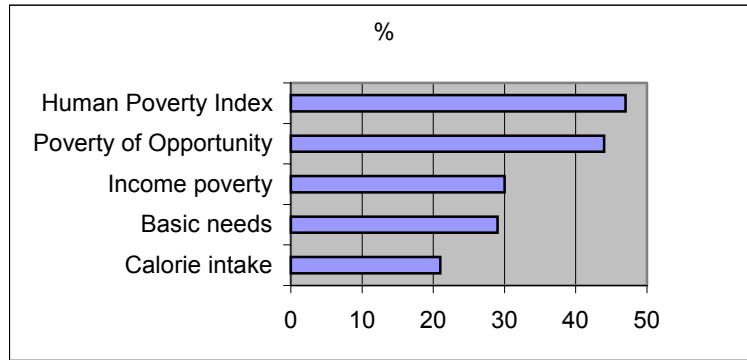
Poverty has other aspects than shortage of food and basic needs. The Mahbubul Haq Human Development Centre (MHHDC) collates five methods for a comprehensive overview. The *food-poverty* approach is based on the requirement of 2250 calories per person. The *basic needs* approach relies on minimum expenditures for food, clothing, etc. The *income-poverty* measure counts persons living on less than \$1 per day or local equivalent. The *Human Poverty Index* (HPI) averages mortality before age 40, illiteracy, and lack of access to water and health, and percent of underweight children. The *Poverty of Opportunity Index* (POPI) adds income deprivation to the HPI deprivations.

Many more people are denied basic human opportunities than are denied a minimum income for food and other basic needs. In fact, while one-third of Pakistan's people are income-poor, nearly one-half suffer from serious deprivation of several opportunities of life. Nearly two-thirds of the total adult population (and as much as three-fourth of the adult female population) cannot read or write. Access to basic social services like primary health care is denied to nearly half the population. About 38 percent of the children under five are malnourished. These deprivations are the real cause of human poverty<sup>5</sup>.

Figure 1: Pakistan's Poverty Pyramid – People in Poverty 1995

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<sup>5</sup> HDC, (1998) "Human Development in South Asia, 1998", OUP, Karachi



Source: MHHDC, 1999

While *income-poverty* declined during the 1980s and resurged during the 1990s, the poverty of opportunity index has shown a consistent decline. The reduction was slow during the 1970s, rapid in the 1980s, and sluggish again during the 1990s. The steady improvement in people’s lives in terms of access to basic economic and social opportunities has mainly come about from an improvement in health. This probably has more to do with the technical advancement and diffusion of modern medicine worldwide than with any conspicuous government action<sup>6</sup>.

### 2.1.2. Human Development Index (HDI)

The HDI for Pakistan as reported over time also suggests a slow but steady improvement in people’s lives over the decade of the 1990s. However, a re-calculation of past HDI undertaken for the Human Development Report, 2001 suggests a more modest pace of improvement. Pakistan has in fact experienced a deterioration in its ranking among countries over the 1990s. It ranked 132<sup>nd</sup> on the comprehensive list of 173 regularly and non-regularly reported countries at the start of the 1990s. It declined to 138<sup>th</sup> position by the end of the decade.

Table 2: Human Development Index Trends for Pakistan

<sup>6</sup> Mahbub ul Haq Centre for Human Development, “A Profile of Poverty in Pakistan”, UNDP, Islamabad, 1999

Year	Original Index	Re-calculated Index	Rank/ Listed Countries
1990	0.311	0.441	120/160
1992	0.393		132/173
1994	0.445		
1995	0.453	0.476	
1997	0.508		
1999	0.498	0.498	127/162
2000	0.499	0.499	138/173

Source: Human Development Reports, 1991, 1994, 2001, and 2002, and Human Development in South Asia, 1998, 1999 and 2000

### 2.1.3. Growth

Pakistan experienced strong economic growth during the 1980s. Growth decelerated in the 1990s because efficiency of investment deteriorated in the first half of the decade while the levels of investment went down in the second half<sup>7</sup>. In particular, public sector investment shrank from an average 9.1 percent of GDP during the 1980s down to 6.4 percent during 1995-2000.

Pakistan embarked on major economic stabilization and structural reforms during 2000-01, with a view to reduce fiscal and current account deficits. Growth was just 2.5 percent, adversely affected by drought and a 10 percent decline in the output of major crops. The fiscal year 2001-02 was even more challenging owing world and regional events. Public investment was further curtailed owing the over-run in defence spending in response to an unprecedented massing of troops by India on Pakistan's borders. Heightened tensions with India also dampened private investor's sentiments. Drought conditions also persisted. Nevertheless, GDP picked up modestly to grow at 3.6 percent during 2001-02.

<sup>7</sup> GoP, Economic Survey 2001 – 2002, Table 1.3, Economic Advisor's Wing, Islamabad

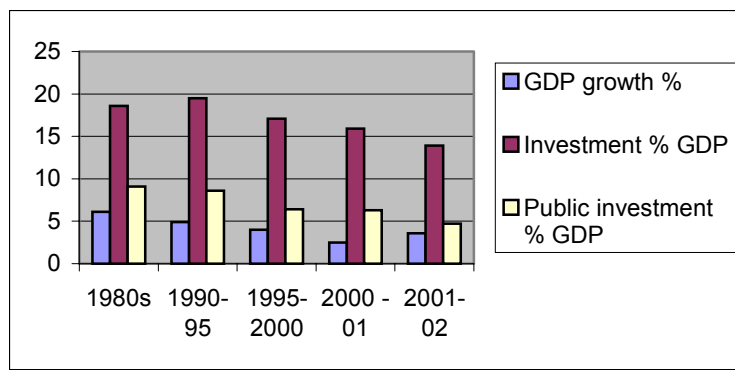


Figure 2: Growth and Investment;

Source: Federal Bureau of Statistics

With population growth continuing around 2.5 percent, a particular concern is that growth in per-capita income was either negative or only marginally positive on at least four occasions during the last decade. It is not surprising that the number of people below the official poverty line increased from 18 million in FY 1988 to nearly 44 million by the close of the century<sup>8</sup>.

#### 2.1.4. Trade

Pakistan is the seventh most populous country in the world with 146 million inhabitants that is 2.3 percent of world population. Yet, it is a low-income developing country with a GNP per capita of US\$ 430 and a correspondingly small share of world trade.

Soon after Independence in 1947, Pakistan adopted an import substitution strategy to develop its industrial base. Tariff and non-tariff barriers against imports were kept high. An overvalued rupee and the cost of production with tariff-loaded plant and components in fact implied a massive anti-export bias. During the early 1980s, exports were typically half or less than half the import bill. Import duties were rationalized during the late 1980s, processed commodities became more competitive internationally, and exports have risen to around 90 percent of imports (Table 3).

Table 3: **Pakistan's External Trade, 1980-2001**

Year	Exports (Million \$)	Imports (Million \$)	Growth Rate of Exports (%)	Growth Rate of Imports (%)	% Share in GDP	
					Exports	Imports
1980-85	2675	5596	-	-	9.0	18.7
1985-90	4167	6275	-	-	11.3	17.1
1990-95	6958	9154	-	-	13.5	17.8
1995-96	8707	11805	7.0	13.6	13.8	18.7
1996-97	8320	11894	-4.4	0.8	13.4	19.1
1997-98	8628	10118	3.7	-14.9	13.9	16.3
1998-99	7779	9432	-9.8	-6.8	13.3	16.1
1999-00	8569	10309	10.2	9.3	13.9	16.8
2000-01	9202	10729	7.4	4.1	15.7	18.4

Source: Economic Survey, 2001 – 2002, Government of Pakistan, Economic Advisors Wing, Ministry of Finance, Islamabad, June 2002

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<sup>8</sup> Sakib Sherani, “Escaping the Debt Trap” Asian Development Bank, Working Paper No. 1, 2002

World trade has doubled from three trillion dollar ( $3 * 10^{12}$ ) to six trillion dollars during the last decade of the 20<sup>th</sup> Century. Pakistan has participated less than proportionately in this growth. Its share of world exports has declined from an already miniscule 0.21 percent in 1990 to 0.15 percent in 2000.

Table 4 displays the array of 26 product categories that comprise Pakistan's leading exports by share in world trade. Rice is its highest profile item in world trade, followed by textile articles (such as towels, bed sheets), woven cotton cloth, yarn, non-textile clothing (such as leather jackets and gloves), floor coverings (such as carpets and rugs), and raw cotton. Apart from these seven product categories, all other exports from Pakistan contribute less to world trade than its share of world population.

Another perspective is obtained by looking at Pakistan's exports in terms of commodity groups. Seven commodity groups - cotton, leather, synthetic textiles, rice, sports goods, wool & carpets, and fish - dominate Pakistan's exports and accounted for around 88 percent of exports during the decade of the 1990s. Among these categories, the cotton group alone contributed 60 percent followed by leather (8%), synthetic textiles and rice. Such a high degree of concentration in a few items is a major source of instability in export earnings. A poor cotton crop can seriously affect total export proceeds, as has been observed several times during the last decade.

The composition of exports with respect to stage of processing has changed significantly during the 1990s. Primary and semi-manufactured exports have declined from 19 to 11 percent and from 24 to 14 percent respectively during 1990-2002. Manufactured exports have increased from 57 percent in 1990-91 to 75 percent in 2001-02. The changing composition suggests that Pakistan is no longer heavily reliant on primary commodities for foreign exchange earnings. However, the country still relies heavily on labour-intensive and low value added exports, especially textiles and clothing.

Table 4: **Pakistan's Share of World Exports**

Pakistan's Exports YEAR	Value (Thousands of dollars)			Percentage of world		
	1990	1995	2000	1990	1995	2000
SITC						
042 Rice	242,389	478,798	534,063	6.09	6.54	8.34
658 Textile articles nes	481,193	726,083	1,354,051	5.59	5.76	8.16
652 Cotton fabrics, woven	605,439	1,072,542	1,072,970	3.97	5.33	5.35
651 Textile yarn	1,002,891	1,648,199	1,188,502	4.32	4.94	3.73
848 Headgear, non-textile clothing (eg. Leather jackets, gloves)	264,123	382,828	468,179	2.72	3.27	3.73
659 Floor coverings (eg. carpets, rugs)	236,411	151,729	282,105	2.81	1.57	3.07
263 Cotton	482,250	224,581	205,871	5.22	1.99	2.55
653 Woven man-made fib fabric	277,898	503,047	509,336	1.28	1.54	1.75
846 Under garments knitted	142,654	365,693	527,147	1.19	1.61	1.67
847 Textile clothing accessories nes	66,298	167,342	142,444	1.38	2.46	1.66
611 Leather	300,769	266,315	204,231	3.15	1.84	1.41
842 Men's outerwear non-knit	122,909	222,587	416,196	0.73	0.82	1.23
844 Under garments non-knit	130,732	167,883	160,861	1.87	1.29	1.14
845 Outer garments knit non-elastic	128,872	195,047	323,681	0.51	0.61	0.75
894 Toys, sporting goods, etc	105,891	189,086	213,600	0.54	0.61	0.61
696 Cutlery	8,964	20,440	26,819	0.35	0.55	0.59
075 Spices	12,964	8,620	15,543	0.98	0.48	0.57
223 Seeds for non-soft fixed oils	6,467	4,755	4,285	0.86	0.61	0.54
655 Knitted, etc, fabric	26,803	94,111	70,480	0.44	0.89	0.53
872 Medical instruments nes	76,847	108,186	120,491	0.76	0.65	0.51
061 Sugar and honey	43,893	222,024	49,395	0.36	1.47	0.49
843 Women's outerwear non-knit	172,285	163,645	174,641	0.67	0.43	0.38
057 Fruit, nuts, fresh, dried	43,580	37,216	85,518	0.23	0.14	0.32
034 – 037 Fish, shell fish, preparations	107,066	150,436	149,618	0.33	0.32	0.29
612 Leather, etc, manufactures	13,002	13,220	12,273	0.33	0.23	0.19

Source: <http://unctad.org>

Imports fluctuated sharply during the decade of the 1990s. They grew by as much as 21.4 percent in 1991-92 owing an extraordinary import of machinery and wheat. Imports fell sharply in 1993-94 by 13.8 percent and again in 1997-98 by 14.9 percent. The changes were the result of demand management policies pursued to restore macro-economic stability. The further decline of 6.8 percent in imports during 1998-99 was on account of an import compression policy that became necessary to protect Pakistan's foreign exchange reserves in the aftermath of economic sanctions following nuclear testing (Table 3).

**Table 5: Pakistan Import Structure by Product**

Imports	Value (Thousands of dollars)			Percentage of all products		
	YEAR	1990	1995	2000	1990	1995
<b>SITC</b>						
334 Petroleum products, refined	892,492	1,244,163	2,324,081	12.13	10.63	20.99
333 Crude petroleum	591,134	529,429	1,214,916	8.04	4.52	10.98
423-4 Fixed vegetable oils	402,023	1,062,532	414,323	5.47	9.08	3.74
724 Textile, leather machinery	303,072	291,269	333,908	4.12	2.49	3.02
583 Polymerization, etc, prdts	144,035	264,206	278,857	1.96	2.26	2.52
541 Medicinal, pharmaceutical prdts	182,928	297,526	245,102	2.49	2.54	2.21
061 Sugar and honey	159,836	6,381	231,353	2.17	0.05	2.09
971 Gold, non-monetary nes	1,258	168,279	230,122	0.02	1.44	2.08
074 Tea and mate	179,165	181,980	222,566	2.44	1.55	2.01
598 Miscel chemical prdts nes	70,483	115,659	209,802	0.96	0.99	1.9
562 Fertilizers, manufactured	241,788	275,989	202,320	3.29	2.36	1.83
674 Iron, steel univ, plate, sheet	148,498	238,944	186,687	2.02	2.04	1.69
781 Passengr motor vehicl, exc bus	173,165	217,210	185,102	2.35	1.86	1.67
511 Hydrocarbons nes, derivatives	11,323	16,984	175,237	0.15	0.15	1.58
041 Wheat etc, unmilled	320,207	444,368	144,455	4.35	3.8	1.3
054 Vegtb etc fresh, simply prsrvd	34,643	116,525	143,708	0.47	1	1.3
764 Telecom equip, parts, acces	170,824	174,750	134,547	2.32	1.49	1.22
728 Oth machy for spec industries	71,791	240,868	133,867	0.98	2.06	1.21
513 Carboxylic acids, etc	94,479	225,429	130,535	1.28	1.93	1.18
512 Alcohols, phenols, etc	26,473	50,663	119,795	0.36	0.43	1.08
222 Seeds for soft fixed oils	431	8,185	116,416	0.01	0.07	1.05
514 Nitrogen-function compounds	89,736	113,329	113,846	1.22	0.97	1.03
641 Paper and paperboard	129,809	143,076	107,262	1.76	1.22	0.97
759 Office, adp machy parts, acces	8,442	15,925	102,543	0.11	0.14	0.93
752 Automatic data processing equip	31,114	60,684	96,685	0.42	0.52	0.87
263 Cotton	3,822	223,005	81,644	0.05	1.91	0.74
591 Pesticides, disinfectants	61,410	147,950	69,810	0.83	1.26	0.63
716 Rotating electric plant	66,162	201,118	63,073	0.9	1.72	0.57
782 Lorries, spec motor vehicl nes	135,896	109,494	61,948	1.85	0.94	0.56
741 Heating, cooling equipment	35,024	99,024	59,156	0.48	0.85	0.53
722 Tractors non-road	30,745	141,384	52,619	0.42	1.21	0.48
743 Pumps nes, centrifuges, etc	30,931	122,313	49,216	0.42	1.05	0.44
744 Mechanical handling equipment	59,675	127,984	49,254	0.81	1.09	0.44
266 Synthetic fibres for spinning	46,956	113,310	35,398	0.64	0.97	0.32
678 Iron, steel tubes, pipes, etc	41,713	112,774	30,428	0.57	0.96	0.27
712 Steam engines, turbines	65,666	313,920	14,563	0.89	2.68	0.13
<b>Total</b>				<b>68.75</b>	<b>70.23</b>	<b>75.56</b>

Source: <http://unctad.org>

A scrutiny of Table 5 shows that Pakistan's imports are concentrated on a few commodity groups, namely petroleum & petroleum products, edible oils, machinery, chemicals, transport equipment, iron & steel, fertilizer and tea. These eight categories accounted for about 75 percent of imports during the 1990s. Over the decade, there has been considerable variation in their shares, reflecting domestic demand and international prices. Machinery, transport and other capital goods were the first to be taken off the national shopping list after the 1998 economic downturn. On the other hand, the demand for petroleum was relatively price inelastic. Owing rising prices, petroleum and its products rose sharply to 33 percent of the import bill in 2000, compared to an average of 17.8 percent in the previous decade. Chemicals, office and data processing equipment also depicted a steadily rising trend. Edible oils rose and then declined more as result of price changes than variations in the volumes of imports. The import of gold for jewellery and fresh vegetables are indicators of a more open and globalized trading regime.

Most of Pakistan's exports are directed to five markets, namely the EU, USA/Canada, Japan, OPEC and other developing countries in Asia.. The EU and US/Canada are the main markets, together absorbing more than half the country's exports. Exports to USA have risen persistently through the 1990s and 2000-01, while those to Japan has exhibited a continuous decline. These trends may be attributed to the long boom in the USA and to the protracted recession in the Japanese economy (Fig. 3).

The same five regions account for 80-90% of Pakistan's imports. The share of imports from EU, USA/Canada and Japan has declined from 50% of total exports at the start of the 1990s to less than 30% in recent years. The imports from OPEC, mainly Kuwait and Saudi Arabia, have risen sharply reflecting the prices of petroleum and its products (Fig. 4). The imports from Malaysia, mainly palm oil, peaked at 8.8 percent of total imports in 1994-95, and have since backed down to 3.9 percent.

Figure 3: Pakistan Export Destinations

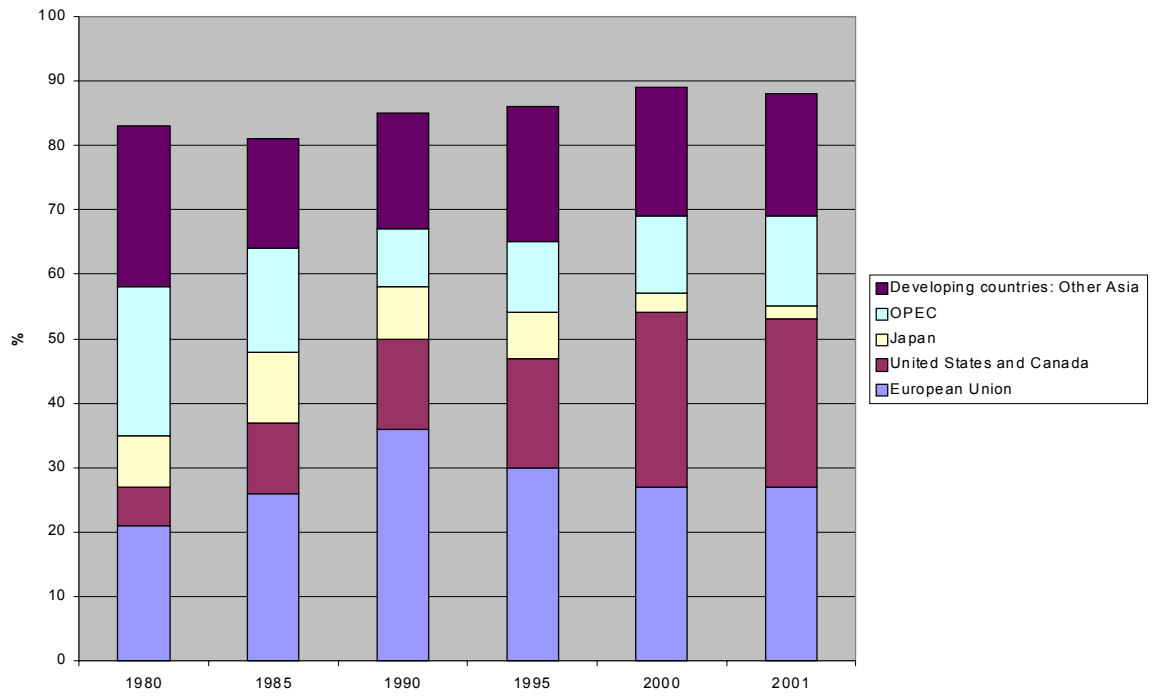
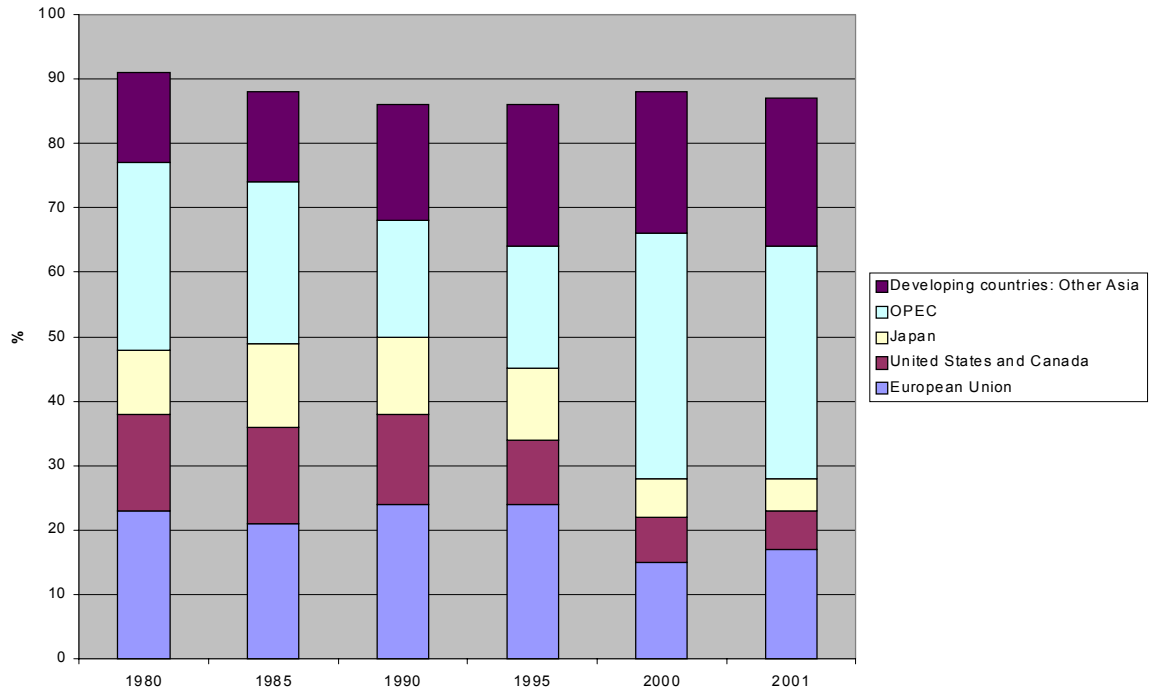


Figure 4: Pakistan Import Origins



Source: <http://unctad.org>

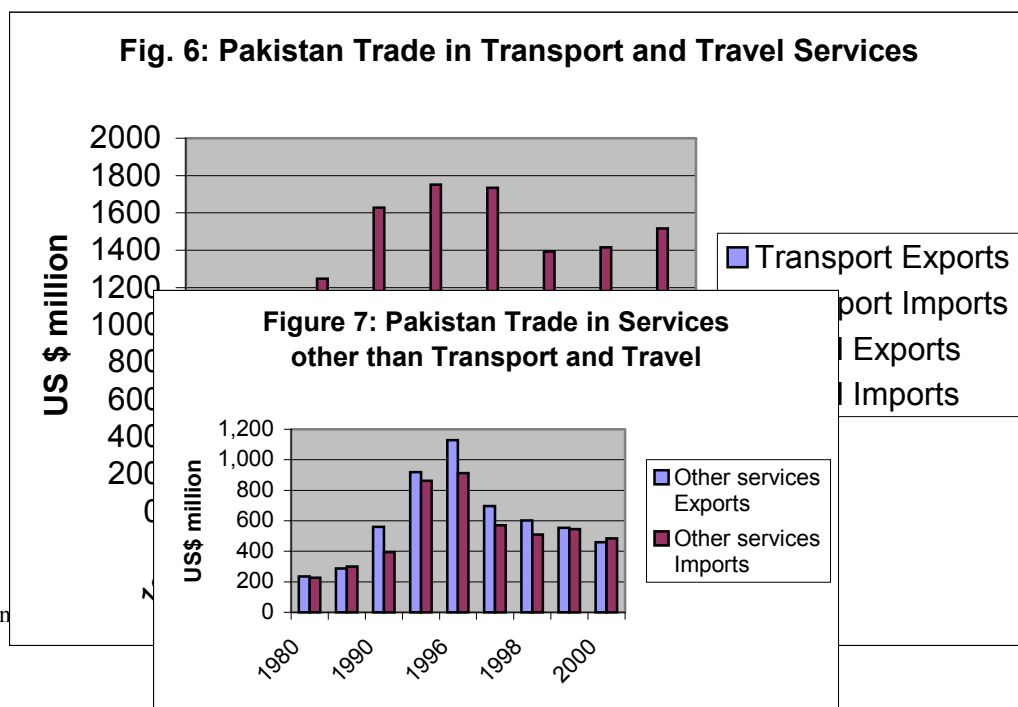
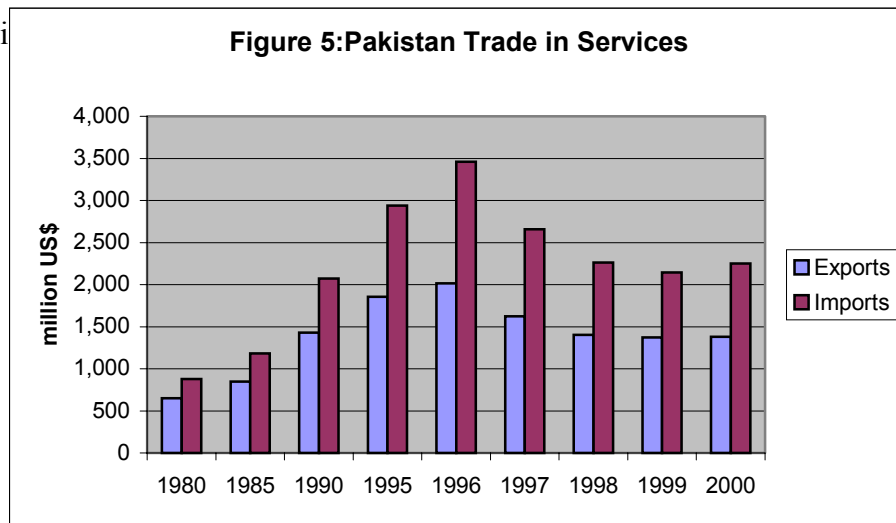
The trade in services is of particular interest to this Study. Indeed, the trade in services picked up sharply during the first half of the 1990s and by the mid-1990s, services accounted for a significant share in the overall trade of Pakistan. However, the persistent imbalance between the provision (export) and imports of services grew more acute. A recession in trade in services started in 1997 and this has persisted in most sub-sectors till date (Fig 5).

Transport comprising maritime, air and road transport services and auxiliary services, is the biggest single sub-sector in services. It is also the sub-sector with the most persistent imbalance. In the last two decades, Pakistan has been providing around half the value of transport services to the rest of the world compared to what it has procured (Fig.6). An inadequate investment in the maritime fleet and the rising costs of maritime and air transport services abroad account for the difference.

Travel is the other major services sub-sector traded internationally, but not in the case of Pakistan. It peaked as a tourism destination in the late 1980s. On the other hand, Pakistanis continued to travel abroad in large numbers till 1996, when the

import of tourism services peaked (Fig. 6). In that year, only 13 dollars were earned through the provision of travel services for every 100 dollars Pakistan tourists spent abroad. Regional and world events have since put a major brake on Pakistanis travelling abroad, but visits to Pakistan have also slumped further. As such, the current situation may be described as an acute imbalance at low levels of trade.

The aggregate of trade in the other services sub-sectors is more or less balanced as it has been for the last two decades (Fig. 7). Postal, courier, telecommunications, financial and news agency services have strong elements of reciprocity. It appears that Pakistan is also holding its own in the provision of professional, business, construction, engineering, and energy and environmental services abroad compared to its needs for these services. However, detailed data is not available to substantiate thi



Source: <http://stats.unctad.org>

#### 2.1.5. State of the Environment

Pakistan has suffered widespread and wide-ranging environmental degradation in recent decades. There has been a rising level of awareness in the last decade and some action. Yet, the state of the environment continues to deteriorate, most underlying processes are continuing unabated, and there is acceleration in some pollution trends.

Though densely settled, Pakistan is largely an arid or semi-arid land. Only seven per cent of the country's area receives more than 500 mm of rain per annum, mainly in the form of monsoons during three summer months of the year. This sub-humid zone is essentially limited to the ecologically fragile uplands, comprising geologically recent mountains and foothills.

Less than 20 per cent of the 88 million hectares (mha) of the country has the potential for crop cultivation. The amount of cropland is nearly matched by the amount of land actually being cultivated. Most of the future increase in agriculture production will have to come from multiple cropping and increasing yields per hectare. Pakistan's forests and farmland trees are limited to 4.2 mha, of which coniferous forests are just 1.9 mha. Most so-called forests and plantations are open scrublands with sparse tree cover. Satellite imagery identifies 29 mha of the country as rangelands, of which 25 mha (or 87 per cent) are degraded, that is, their palatable bushes and grasses have been so over-grazed that they can not be restored by a run of wet years. Another 27 mha is barren land, comprising snow, glaciers, rock, gravel, desert or tidal flats, while 6.7 mha are unclassified, mainly highlands above 3650 meters<sup>9</sup>.

Watershed lands in the upper Indus and its tributaries suffer from quite unfavourable geology, steep slopes, and harsh climate leading to significant mass wasting. Yet, man-made erosion is more serious than natural erosion by one to three

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<sup>9</sup> ADB/UNDP, Forestry Sector Master Plan, Islamic Republic of Pakistan, 1992

orders of magnitude at any given location<sup>10</sup>. Upland forestry, agriculture, and livestock management practices leave much to be desired. Accelerated surface erosion is reducing the life of the reservoirs on which irrigation depends.

Pakistan relies on irrigation for more than 90 per cent of its food and fibre production. Water withdrawals have increased markedly since 1960, but there has been no significant improvement in water-use productivity (crop output per unit of water). Yet renewable fresh water sources are finite and Pakistan has reached the limits of surface and ground water withdrawals. The mean value of inflows into the Indus Basin is 180 billion m<sup>3</sup>, with a 20 per chance of not exceeding 160 billion m<sup>3</sup>. Of this, approximately 125 billion m<sup>3</sup> are already diverted at canal heads that is 69 percent of the average inflow, but more than 77 percent of the inflow in low flow years. Only 30 per cent of the diverted water reaches the crop roots. The rest is lost in canals and watercourses or during application in the field. Ground water is a secondary source derived from surface water infiltration. Of the annual recharge of ground water, estimated at 57 billion m<sup>3</sup>, more than 51 billion m<sup>3</sup> (that is 89 percent) are drawn up by tube-wells and used; most of unutilised discharge is in areas of saline ground water.

Outside the Indus Basin, water is even more limited. In parts of Balochistan, geological water is being mined. In Quetta Valley, the water table is falling by up to two metres every year. Simultaneously, overgrazing has brought down the productivity of rangelands to as little as 15-40 per cent of their potential. Over the last five decades, a five-fold increase in goats and a four-fold growth in the number of sheep, that is primarily range animals, have led to overgrazing<sup>11</sup>. Three-fourths of the animals are of nondescript species, and the livestock sector is caught in a downward spiral of too many sick animals chasing too little feed.

The coastal strip of Pakistan is arid, and mangrove leaf litter constitutes a major source of nutrients. Primary productivity of mangrove-covered delta areas is four to

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<sup>10</sup> WAPDA, "Water Sector Investment Plan", World Bank and UNDP, 1990

<sup>11</sup> PARC, "Combating Desertification in Pakistan", UNEP/ESCAP, 1994

seven times that of coastal areas without mangroves. Most tropical marine species pass at least one stage of their life cycle in mangroves. Yet mangroves are under increasing environmental stress from reduced freshwater flows, from sewage and industrial pollution, from fodder, fuel wood, and timber extraction, and from clear felling for development. Fisheries make a significant contribution to Pakistan's exports. The level of effort per unit catch has been rising with increased harvesting, and the landings of large and medium-sized shrimp have collapsed a number of years in a row in recent years. Trapping of juvenile fish in small mesh nets at the outlets from the mangroves during receding tide is a major cause of the collapse<sup>12</sup>.

Deteriorating water quality is yet another issue. River stretches with organic pollution include the River Ravi below the city of Lahore, where the dissolved oxygen falls below 4 mg/l, which is the minimum requirement for most aquatic life. And since fertilisers and pesticides take decades to work their way through the soil to water bodies, there are no grounds for complacency about the low levels of nutrient pollution currently recorded.

The country has a great variety and richness of landscapes, habitats, and soil types, but a smaller variety of mammals, birds, plants, reptiles, and amphibians per unit area than the other countries of South Asia<sup>13</sup>. Since Pakistan straddles two zoogeographical (Paleoartic and Indo-Malayan) realms, it should have had a large variety of life. Biological erosion could be the result of the long history of settlement in the region. However, the current level of threat to biological diversity does not seem significantly different from that prevailing in the other South Asian countries. Pakistan's real biological assets are generally unappreciated. It is a world centre for land races of cereals, and has a large variety of sub-soil organisms<sup>14</sup>. Pakistan is both energy-poor and energy-profligate. Known reserves of oil and gas, which are relied on heavily, are small. Domestic oil production meets less than a

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<sup>12</sup> Zoological Survey of Pakistan, 1998.

<sup>13</sup> World Resources Institute, "World Resources, 1994-95", Tables 20.1 and 20.2, pp 316-319, OUP, 1994

<sup>14</sup> McNeely, J., pers. comm.

quarter of needs, with the balance imported at a high cost in foreign exchange earnings. Only 11 per cent of the hydro-power potential has been developed to date, and there has been a significant increase in demonstrated and measured coal reserves in recent years. However, both hydro-power development and coal generation could have serious ecological and social impacts if not properly managed. Alternate and renewable energy sources have as yet been largely undeveloped.

Regrettably, energy intensity in the production of GDP is high, and rising. There are significant opportunities to treat energy conservation as a new source of supply. Transmission and distribution losses are high. The industrial sector could save 22 per cent of the energy it uses with no loss of output; tube-well efficiencies could be doubled; domestic energy use could be improved through better building design and insulation; and vehicular efficiencies could be improved by 5 per cent through tune-ups alone.

As expected, data from the Environment Protection Department (EPD) Punjab laboratory show air pollution to be a function of city size, more particularly, its vehicle population. Within cities, pollution levels are high near main road junctions, bus stands, and railway stations<sup>15</sup>. Ambient air quality is worse in the winter season, with more burning of coal and wood fuel. Finally, dust levels are high in this dry country, much above the WHO Ambient Air Quality Guidelines of 60-90 ug/m<sup>3</sup>. Uncontrolled emissions from continuous construction activities, repeated road pavement demolitions, open dumping of refuse, and muck from animal driven vehicles add to the natural dust. Except for dust, other concentrations, although showing a rising trend, are within international guidelines.

The main anthropogenic source of air pollution is the use of energy, mainly through vehicular and industrial emissions. Domestic energy use, open burning of municipal

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<sup>15</sup> Government of Punjab, "Annual Progress Report", EPD Research Laboratories, 1993-94

waste and agricultural residues, and land use changes are other sources of air pollution.

Industry accounts for 87 per cent of sulphur dioxide (SO<sub>2</sub>) emissions, while vehicles account for 68 per cent, 79 per cent, and 94 per cent of carbon monoxide (CO), hydrocarbon (HC), and nitrous oxides (NO<sub>x</sub>) emissions, respectively<sup>16</sup>. Where it matters most, that is in particular urban air sheds, the contribution of vehicles may be even higher.

The use of motor vehicles in Pakistan has shown a rapid increase, owing the combined effect of the rising income levels of the rich, increasing local production of low-cost vehicles, and the inadequacy of alternate modes of transport, such as rail, and the non-existence of urban mass transit systems. For example, while the total route kilometres of railways in the country declined by 11 per cent during the last decade, highway mileage increased by 47 per cent and vehicles on road more than doubled<sup>17</sup>. The policy of a previous government to reduce tariffs and provide bank loans for yellow cabs also encouraged the import of a large number of taxis.

With expanding local production, fleet composition and age distribution of vehicles on road has been changing in recent years, discernibly towards higher capacity eight and ten wheeler trucks and towards models of recent vintage. As a result of the subsidised taxicab scheme, the average age of taxis in Pakistan has recently registered a significant decrease. Private gas stations for supply of compressed natural gas (CNG) have also taken off with government support. CNG is a clean fuel. As such, there has probably been some reduction in emissions per vehicle-kilometre.

Unleaded petrol has been introduced across the country from 2002 (except in high octane RON 90 brands). This is a commendable measure that will result in lower

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<sup>16</sup> Hagler Bailly (Pakistan) Limited "Background on Water, Air, and Marine Pollution in Pakistan", World Bank, Islamabad, 1995

<sup>17</sup> Government of Pakistan "Economic Survey, 2001-02" Economic Advisor's Wing, Finance Division, Islamabad, Tables 13.1 and 13.4

levels of lead in blood over time. A shift to low sulphur diesel is also envisaged, with the introduction of blended (0.5 percent sulphur) fuel planned for the near future.

However, the introduction of clean fuels by themselves is not sufficient to improve air quality. In the absence of major initiatives, such as mass transit schemes, motor vehicles on road may continue to increase rapidly, leading to an enormous strain on infrastructure, and on the environment. Air pollution and noise in some urban areas is already resulting in physical and psychological health impacts. The situation may worsen if preferences for individualised motor transport persist, alternative modes of transport remain insufficient, and pollution controls are not effectively enforced.

Fuel use in industry is mainly in boilers, furnaces and kilns, which account for 90 per cent of total fuel consumption. Given the state of burner technology in Pakistan, emissions of CO, NO<sub>x</sub>, and hydrocarbons are largely a function of fuel use, while emissions of SO<sub>x</sub> are primarily a function of the quality of fuel consumed.

Brick-kilns and coal-fired power stations are the primary and secondary contributors to SO<sub>2</sub> emissions, accounting for more than 80 per cent of industrial and 60 per cent of all emissions. Internationally, the sequence of acid rain, and depression of agriculture yields, forest die back, and acidification of lakes is well known. In Pakistan, this is not yet a problem owing to the general alkalinity of soils. Brick-kilns and sugar refining account for 46 and 38 per cent of industrial CO emissions, while sugar refining alone contributes 74 per cent of hydrocarbon emissions from industry. Finally, cement industry accounts for 38 per cent of NO<sub>x</sub> industrial emissions.

A recent regressive step (2002) is the permission to cement plants to use local coal, which is high in ash and sulphur content. The outcome will be higher ambient SPM levels that are already much above WHO guidelines.

Water quality is affected by a number of factors, including industrial and municipal effluents. Other important sources of water pollution include agri-chemical residues and sedimentation from upland erosion. Some pollutants may persist for centuries, while others are assimilated relatively quickly. The pollution of water does not have equal weight everywhere. Major areas of concern are listed below in order of importance:

- I. Contamination of ground water with toxic substances, particularly where ground water is drawn for drinking and household purposes; as centuries may be needed to flush heavy metals and synthetic chemicals from ground water;
- II. Contamination of river waters, particularly where aquatic life is affected and river water is used for drinking purposes;
- III. Contamination of seawater, particularly areas with low levels of mixing, such as harbours and estuaries.

Much of the equipment in Pakistani industry was purchased at a time when environmental impacts were not considered important and energy prices were low. It has not been upgraded or replaced. Even today, in the setting up of new industries, environmental soundness of technologies is a concern of the progressive minority. There is no doubt that the use of polluting and wasteful technologies carries an economic price. A number of cases of serious impact on human populations, including loss of life, have been documented. However, these costs are largely external to the polluting plants.

Effluent treatment facilities were practically non-existent a decade ago and found only in the plants of multinational corporations. Since then, treatment plants have been installed by 32 out of 216 large and medium sized tanneries, and a number of progressive domestic firms in the fertiliser, paper, pesticides, pharmaceutical and sugar sectors. For the rest, the most common practice is to combine contaminated and uncontaminated process water and storm water in a drainage channel, for

discharge into rivers. Drainage into open unlined ponds allowing evaporation and seepage is also practised by some industry in canal irrigated areas. Seepage from such drainage ponds raises the water table in the locality, and may contaminate local ground water. The recent case of fluoride poisoning at Kalalanwala near Lahore is the result of such contamination.

Water consumption and effluent generation is related. Surveys actually measuring water use in textile and paper & board industries show that consumption in Pakistani industry is typically five to ten times higher than in industrialised countries, while effluent parameters generally exceed Pakistan EPA, as well as World Bank, Indian, and US-EPA guidelines<sup>18</sup>.

Pollutant loads calculated on the basis of water consumption and typical waste concentrations indicate that sectors of most serious concern are leather tanning and chemicals<sup>19</sup>, discharging 3,600 tonnes of chrome and 24 tonnes of mercury per year, respectively, mainly to ground water and river sediments. Other sectors of serious concern are paper & board and sugar, generating most of the biological oxygen demand (BOD) and suspended solids (TSS). Third, toxic discharges are particularly high from the vegetable oil industry, and from small scale dyeing operations in the textiles sector.

Other sectors of probable concern include the iron & steel industry and the electroplating industry. While the Pakistan Steel Mills located at Karachi has an outfall to the sea, much of the remaining steel industry discharges effluents to fresh ground and surface waters inland. Chrome and nickel contamination of ground waters and streams by discharges from the small scale electroplating industry have been reported from Sialkot and Gujranwala.

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<sup>18</sup> Hagler Bailly (Pakistan) Limited, op cit

<sup>19</sup> In particular, Chlor alkali plants using mercury cells discharge high levels of mercury in their liquid effluents. The worst example is a plant located near Lahore, from which mercury losses are estimated to be about 20 tons a year. The presence of chromium in drinking water and effects of chrome poisoning has also been documented in the vicinity of leather tanning industry in Kasur.

Only half the urban excreta are disposed of in sewers or in open drains; the remainder is deposited on the roadside, into waterways, or incorporated in solid waste. Solid and liquid excreta are the major source of water pollution in the country and the cause of widespread water-borne and water-washed diseases. Most of the excreta that reach sewers are not treated. Sewage treatment plants exist only in Karachi, Islamabad and a few military cantonments, and most of them operate intermittently. Much of the untreated sewage goes into irrigation systems, where the wastewater is reused and then discharged into streams and rivers. Vegetables grown from wastewater have serious bacteriological contamination problems.

The assimilative capacity of rivers is a function of their flow volumes during the low season. A 1987 study<sup>20</sup> estimated the liquid wastes assimilative capacity along ten reaches of the five major rivers of Pakistan, namely, Rivers Indus, Jehlum, Chenab, Ravi, and Sutlej. The waste volumes can be converted into number of persons equivalent, making assumptions about water use rates, percentage population with access to sewers or open drains, soil infiltration capacity, and so on. Comparing these numbers with the urban populations living or forecasted to live in the vicinity of that stretch of river, it is clear that the River Ravi below Shahdara is already loaded far beyond assimilative capacity. According to a 1988 study, pollution had already cut the fish production of this stretch by 5,000 tonnes per year<sup>21</sup>. The situation will get worse unless effluents are treated prior to discharge. The River Indus below Sukkur is also receiving waste volumes larger than assimilative capacity at low flows. On the other hand, most other river stretches still have some capacity to absorb more raw municipal effluent.

Such an analysis allows the development of a prioritised sewage treatment program to be implemented by specific cities. Unfortunately, the few sewage treatment

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<sup>20</sup> Planning and Development Division, "Development of Optimal Standards for Disposal of Sewage", GoP and HRH/IL Joint Venture, Lahore, 1987

<sup>21</sup> Javaid, M.Y., "Losses in Fish Production in River Ravi due to the Disposal of Sewage and Industrial Effluents, Punjab EPA Lecture Series, Lahore, 1988

plants in the country have not been increased or even upgraded during the past two decades, thus treatment capacity has remained static and increasingly inadequate.

Another water pollution concern stems from the use of pesticides and fertilisers, which has grown rapidly. Indiscriminate use can lead to pesticide contamination and fish kills, excessive nutrient loading of waterways, and uncontrolled algae growth. Pesticides are of particular concern because of their bioaccumulation in fish and animal tissue. No studies to date have assessed ground water contamination in Pakistan from pesticide or fertiliser use.

Pakistan generates 66,000 tonnes of solid waste per day - which amounts to 24 million tonnes per year. Waste disposal typically accounts for a quarter of municipal expenditures, although only about half is collected. Collected waste is most often dumped onto low-lying land without even the benefit of sanitary landfill methods. The large and growing expanses of litter, mainly plastic bags, on the fringes of cities and towns are breeding grounds for flies and vermin. Leaching of lead and other heavy metals into ground water has been reported from some porous dumpsites. Gases given off by the common practice of open uncontrolled burning of wastes have not been analysed. Of considerable concern is the likelihood that infectious hospital and toxic industrial wastes have been dumped in municipal disposal areas, or adjacent to hospitals and factories, with no record of their location, quantity, or toxic composition. Such 'toxic real estate' has grave implications for the future health of residents.

Perhaps even more serious than pollution are problems of soils and vegetation cover. The key point about organic complexes, like soils, and living resources, is that while they are naturally renewable if conserved, they can also be utterly destroyed through unwise use. Decline in the quality of soils and living resources of Pakistan could have far and wide ranging impacts.

## **2.2. National development objectives, environmental standards and priorities**

### 2.2.1. National Development Objectives

The Ten Year Perspective Development Plan 2001 – 11 and Three Year Development Programme 2001 – 04 are the current authoritative documents on the macro-economic and public sector development policies and sectoral strategies of the Government of Pakistan. There are seven key objectives of the Ten Year Perspective Development Plan.

#### 1. Accelerating GDP growth, reducing unemployment and alleviating poverty:

The Perspective Plan proposes to revive economic growth by revitalising agriculture, by a leap forward in SMEs and a quantum leap in IT, by priority exploration and development of oil, gas and coal, and a long term structural transformation towards manufacturing and higher value-added services. The growth strategy is accompanied by strategies for unemployment reduction and a direct attack on poverty.

#### 2. Financing growth increasingly through Pakistan's own resources:

Financial sector reforms and capital market development are two key elements of the strategy for achieving the second national development objective for financing growth with domestic resources. The attainment of the objective will be reinforced by programmes for micro-credit for poverty alleviation and by fiscal incentives for overseas Pakistanis for remittances through legal channels.

#### 3. Improving the Government income-expenditure configuration to contain domestic borrowing:

Improving the Government's income-expenditure configuration entails an ambitious improvement in the tax/GDP ratio from 13.5 percent to 19.9 percent, flat defence expenditures, and privatisation of haemorrhaging public sector enterprises. Public sector concerns currently lose more than 3 percent of GDP.

4. Transforming a larger proportion of Private Sector savings into foreign exchange through exports to contain external borrowing:

Pakistan has accumulated around 33 billion dollars of external debt, which equals more than half the GDP of the country. Debt servicing consumes one-third of the export earnings. A main national objective is therefore to contain external borrowing. The first step envisaged is to attain a surplus on the trade account by export led growth in the WTO framework. Efforts are planned to take advantage of liberalised trade in agriculture, textile and clothing, as well as the newly opened trade in services. The second main element is mobilisation of non-debt creating resources, such as FDI, by settlements of disputes with the Independent Power Producers, completion of privatisation, implementation of liberal trade policies, better governance and improved law and order.

5. Improving competitiveness by promoting productivity, efficiency and quality:

Improving competitiveness and productivity is another national objective. It is sought through a focus on technical progress, entailing development of close linkages between high value adding production, training and human resource development. The big push planned for the IT sector is not just to boost software exports but also to improve productivity and quality in textiles, leather, fisheries, engineering and other production sectors.

6. Building the human capital base for long-term, self-reliant growth:

Education for all is seen as the centrepiece of the national objective for building human capital. A major teacher-training programme is envisaged to improve teaching standards. Improving promotional and preventive health care services is a second key element. Addressing the nutritional deficiencies of expecting mothers, providing family planning services, and promoting the development of women are other elements of the national strategy in this area.

## 7. Institutionalising social capital conducive to sustainable development:

Sustainable development requires the State, civil society and the private sector to work in cohesion for economic growth, human development and an environment of peace and harmony. The agenda comprises devolution of political power, decentralisation of administrative and financial authority, judicial reforms, restructuring government bureaucracy, accountability and transparency and fostering of community participation.

### **2.2.2. Environmental Standards and Priorities**

The priority environmental issues identified in the Perspective Plan are as follows:

- Declining freshwater resources;
- Inadequate clean drinking water and sanitation;
- Air pollution;
- Declining land productivity;
- Deforestation and loss of biodiversity;
- Inadequate solid waste management;
- Inefficient utilisation of fossil fuels; and
- Mismanagement of coastal resources and marine pollution.

The Perspective Plan has also established 12 environmental goals along with strategies and programmes to address them. The goals are reproduced in Table 6 along with benchmark conditions and projections.

Table 6. Environmental Goals

S.No	Goal	Benchmark 2001	Projections		
			2004	2010	2011
1.	Air pollution; cost of treating resultant human diseases	Rs.25 billion	35	10	8
2.	Access to adequate sanitation Urban Rural	Population			
		59%	65	76	80
		26%	32	42	45
3.	Urban Solid Waste Management	% Solid Waste Generated			
		25	30	50	55
4.	Consumption of ODS	1800 tons/year	500	0	0
5.	Emissions of Greenhouses Gases	124,000 gigagrams/year	130,000	120,000	120,000
6.	Forest cover (State and private lands)	4.8/% of total land area	5.0	5.5	5.7

7.	Protected Areas under management (214 PAs notified cover 10.4%)	4 % of total land area	8	8	8
8.	Land area affected by desertification	43.9 million hectares	43.9	40	40
9.	Area under reclamation (National Drainage Programme)	1 million hectares	4.45	10	12
10.	Energy Efficiency (overall)	70%	75	76-80	80+
11.	Development Projects with EIA/IEE	2% of projects	20	60	70
12.	Functioning Environmental Tribunals	2	2	5	5

Source: GoP, 2001, Ten Year Perspective Development Plan, Islamabad, pages 233-234

In addition to these goals listed in the environment section of the Perspective Plan, there is an important goal for Clean Water for all Citizens. The benchmark situation of access to safe water is assessed at 63 percent of population. The targets of 68 percent by 2004 and 84 percent by 2011 are to be achieved through investments in water supply systems, strict enforcement of emission control laws, and enhancing institutional capacities to monitor and enforce compliance.

### 3. Connection between Environmental Services and Human Development

#### 3.1. Access (basic and ‘fair’ access in terms of outreach/price)

There is considerable divergence between the various estimates of water supply and sanitation coverage in Pakistan. There is paucity of data. There are definitional issues. There are significant differences between design estimates and the actual extent of public services. The series generated by use of UNDP and World Bank data imply a miraculous increase in coverage in recent years. Table 7 presents a summary of these estimates.

Table 7: Water Supply and Sanitation Coverage in Pakistan (Percent)

Source	Population with access to safe/improved water supply			Population with access to sanitation		
	Total	Urban	Rural	Total	Urban	Rural
Multiple Indicators Cluster Survey, 1995		84	69			
UNICEF, mid-1990s	68			38		
Water Aid, 1997			50			15
Pakistan Integrated Household Survey, 1997		73				22
Human Development Report, 1998 with 1990-96 data	60			30		
Human Development Report, 2002 with 2000 data	88			61		
UNDP/WB Regional Water and Sanitation Programme, 2002 (% safe and proximate)		96 (80)	84 (65)			

Sources: as stated

Ideological debate as well as departmental agendas underlies the various estimates. One rather extreme opinion is that of Gizewski and Homer-Dixon (1996). They argue that the varied and worsening environmental scarcities interact with the structure and operation of the Pakistani State to trigger processes that heighten ethnic, communal, and class-based rivalries. This combination of forces encourages resource capture, the marginalisation of the poor, rising economic hardship, and a progressive weakening of the State. These processes, in turn, culminate in increased

group-identity (for example, inter ethnic) and deprivation conflicts, particularly in the country's urban areas<sup>22</sup>.

The opposing view is based on the data reported in the Pakistan Integrated Household Survey. The results of the 1998-99 survey suggest that inequality in access to utilities and environmental services is at a moderate level in Pakistan and typical for its current stage of development. Access to electricity and piped water is less skewed in favour of the rich than access to gas, telephones, and underground sewerage. In contrast to the view of Gizewski and Homer-Dixon, there is less disparity in urban areas than in the countryside.

Table 8: Inequality in Access to Utilities and Environmental Services

(Highest to Lowest Ratio – Per Capita Income Quintiles)					
	Electricity	Gas	Telephone	Piped Water	Underground Sewerage
Pakistan	1.64	3.86	5.83	2.00	3.41
Urban	1.37	2.39	6.01	1.67	2.94
Rural	1.91	5.34	5.65	2.33	4.37

Source: SPDC, 2001. Social Development in Pakistan, from PIHS (1998-99)

An examination of the prices paid and spatial variation in the quality of environmental services could throw more light on the issue. Unfortunately, authoritative price and quality data is not available.

### 3.2. Pro-poor Growth (e.g., FDI, employment)

The poverty reduction strategy in Pakistan is currently guided by the Interim – Poverty Reduction Strategy Paper (I-PRSP), November 2001. It has eight policies or policy goals, with associated outcome measures, and input and output indicators. The programmes under I-PRSP comprise banking and financial sector reforms, civil

<sup>22</sup> Gizewski P. and T Homer-Dixon, 1996, Environmental Scarcity and Violent Conflict: The Case of Pakistan, Occasional Paper, Project on Environment, Population and Security, Washington, D.C.: American Association for the Advancement of Science and the University of Toronto, April 1996

service reform, social development, gender-related reforms, health and nutrition, family planning, water supply and sanitation, and targeted social assistance.

Environmental management has been subsequently recognized as a key omission. At present, work is in hand to “mainstream environment in Pakistan’s poverty reduction strategy ...to ensure that the full PRSP incorporates the critical issues of environmental sustainability”<sup>23</sup>. The following Table has been incorporated in the Pakistan Human Condition Report 2002, a publication of the Centre for Research in Poverty Reduction and Income Distribution (CRPRID), housed in the Planning Commission.

Table 9: Costs of Environmental Mismanagement in Pakistan

Environmental Issue	Estimated Annual Cost (mid-1990s) \$ million	Estimated People Impact Millions
Air pollution	900	40
Surface water pollution	750	50
Ground water pollution	Aquifer degradation (chemical, salinisation)	Most farmers or 5 million households or 30-35 million people
Hazardous waste	Unknown	Millions – urban and rural areas
Soil degradation	350	Most farmers or 5 million households or 30-35 million people
Rangeland degradation	130	Loss of ecological functions
Deforestation	50	Loss of ecological functions
Loss of biodiversity	Unknown	Loss of ecological functions
Total	2180	100+
The aggregate cost of US\$2.2 billion is about 4 percent of Pakistan’s GDP		

Source: Brandon, C. 1995, “Valuing Environmental Costs in Pakistan: The economy-wide impact of environmental degradation”, The World Bank

Ghaus (1989) identified pro-poor services within the functions performed by Pakistan’s municipal and provincial governments. She found that municipal services such as garbage disposal and intra-urban roads have a pro-poor bias. In contrast, water supply is more often pre-empted by the upper income groups<sup>24</sup>. One

<sup>23</sup> Letter of DG (Env), MELGRD dated March 18, 2003

<sup>24</sup> Ghaus, A. The incidence of public expenditure in Karachi. *Pakistan Journal of Applied Economics*, 8(1), Summer 1989

caveat is that her research was based on a sample of urban households and may not apply to rural areas. The second limitation is that the findings apply to the current modes of implementation and delivery, which will change in a more open economy for services.

This Study has not been able to trace recent estimates of job creation associated with investments in environmental management. The potential FDI in environmental goods and services is also subject to the same uncertainties as FDI as a whole.

David Satterthwaite has carefully explicated the inherent limitations on the effectiveness of aid agencies in alleviating poverty<sup>25</sup>. He argues that the official aid agencies and development banks do not implement project, they fund others to do so. They are only as effective as the institutions they fund, generally government ministries and agencies. World Bank and regional development banks are banks. They make capital available to member governments, whether or not the member governments are effective with regard to poverty reduction. The need to lend money often conflicts with the best development course, which is for recipient governments to keep down capital expenditures. Yet, governments are tempted to take project loans for their macro-economic and budgetary support implications. He describes how a \$ 70 million loan from the Asian Development Bank for a part of the Greater Karachi Sewerage Plan was not actually needed but pushed by the federal and provincial bureaucracy. The need for capacity building of partner agencies is increasingly recognized. However, development agencies are constrained by their limited knowledge of local conditions and by the need for a lengthy and consistent process of institutional transformation.

### **3.3. Fiscal implications – budget re-orientation, with reference to investment and performance requirements**

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<sup>25</sup> Satterthwaite, D. Reducing urban poverty: constraints on the effectiveness of aid agencies and development banks and some suggestions for change. *Environment and Urbanization*, Vol 13 No 1, April 2001, pp 137-157

The Perspective Plan indicated a ten-year investment of around Rs.140 billion in water supply and sanitation (out of the Rs.257 billion in the physical planning and housing sector). Arshed estimates the new investment and rehabilitation needs of the domestic water supply sector in Pakistan at between Rs.150-190 billion till 2015 to achieve MDG<sup>26</sup>. Hussain estimates that Pakistan will require an investment of Rs.324 billion for water supply and sanitation over the period till 2025<sup>27</sup>. These investments of the order of Rs.10 - 15 billion per annum are infeasible from public expenditures. The financing required is three to five times the current rate of the public sector allocation of around Rs.3 billion per annum.

It is also revealing to look at financing issues from the mid-level perspective of a sanitation agency and its customers. The Karachi Water and Sewerage Board does not reach out to the informal settlements that contain 60 percent of the city's population. Sewage disposal is managed by other agencies in about half the formal area. As distinct from its mandate under KWSB Act 1996, the agency serves only 20 percent of the area of Karachi Division. It had revenues of Rs.1.6 billion in 1998-99, around Rs.1.5 billion generated from water charges, Rs.120 million from conservancy charges and Rs.30 million from other sources. Its budgeted expenditures of Rs.2.1 billion could only be partially met with a help of a subsidy of Rs.375 million from metropolitan government. KWSB allocated Rs.483 million to its Sewage Maintenance Wing that included Rs.200 million earmarked for maintenance and improvement of sewerage system. The financing shortfall meant that only 30 percent of the amount could be disbursed<sup>28</sup>. In fact, its customers received back in services just half the measly amount they paid in the shape of conservancy charges.

### **3.4. Economic efficiency**

Economic efficiency is most apparent in the provision of environmental services directly to industry. Azher Uddin Khan (2002) defines cleaner production as a

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<sup>26</sup> Arshed, R.R. Financing Challenge for Domestic Water in South Asia (mimeo), 2003

<sup>27</sup> Hussain, Maliha, Water and Security in South Asia, Volume 4 Investment Requirements (draft), 2003

“series of small steps that lead to much smaller and cost-effective viable environmental solutions”. He quotes examples of batch instead of continuous washing in textile industry resulting in 30-40 percent reduction in water use and a 20-30 percent reduction in size of treatment plant required. The installation of oil skimmers in sugar industry has permitted successful recovery and re-use of waste oil and increased efficiency of treatment plant by 40-50 percent. Cleaner production technologies have been implemented on a wide scale in the leather, sugar, and fertiliser industries in Pakistan, and in almost half the paper and board units<sup>29</sup>. The investment in automatic water shutdown valves at a textile unit located in water-short Karachi, paid for itself within five weeks, according to a post-facto economic analysis conducted by the factory managers.

### **3.5. Environmental quality and integrity**

Rimmer and his team have conducted a Participatory Poverty Assessment (PPA) for the PRSP in two contrasting sub-sites in 54 urban and rural research sites (Union Councils) across Pakistan<sup>30</sup>. The PPA uses a livelihoods framework to structure the analysis of poverty. Participants analyse their access to various assets, describe the vulnerabilities (shocks, trends and seasonal variations) faced and the livelihood strategies they are able to adopt. A key finding of the PPA was that environmental concerns are very much to the forefront in the analysis of their own situation by communities of the poor. Communities of the poor in Pakistan are extremely concerned about four environmental trends.

#### 1. Increasing deforestation:

Poor communities across Pakistan were extremely concerned about the impact of increasing deforestation on their livelihoods. The concern was highest in the areas where forests are a major contributor to livelihoods, particularly the

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<sup>28</sup> OPP-RTI, Sewerage, drainage and treatment plants, OPP-RTI, Karachi, 2000

<sup>29</sup> Khan, Azher Uddin, Potential of Cleaner Production Technologies in Pakistani Industries, SDPI Research and News, Vol 9, No.5,6, 2002

<sup>30</sup> Rimmer, M. Environmental Issues arising from the Pakistan PPA. (mimeo) DFID, CRPRID, 2003

upland areas of North West Frontier Province (NWFP), Federally Administrated Tribal Areas (FATA), and the Northern Areas (NA).

## 2. Decreasing water availability:

The decline in water availability was a widely recognised trend that undermines the ability of rural households to move out of poverty. The impact was particularly severe in arid and semi-arid regions and areas where *barani* (rain-fed) cultivation is practiced. The increased scarcity of water for drinking was highlighted as a growing concern in many sites. For example in FATA groundwater levels have dropped significantly drying out most wells. The lack of drinking water was a problem for the poor in urban areas too. For example in Quetta, analysts explained that water for around 600 households was supplied through a 3” pipe, pressure was low and households did not get an adequate supply. This affected poor households the most as better-off households could afford to install pumps to draw water from the main and often had three or four more additional illegal connections.

## 3. Declining quantity and quality of land:

A number of key issues arose with respect to land; access is highly unequal, fragmentation is compounding the negative effects of ever-smaller farm size, and the quality of land is declining. Landownership was identified as the prerequisite for moving out of poverty. Land concentration in the hands of a few results in perpetuation of the exploitation of the poor. Tenure insecurity increases the vulnerability of tenants. There was also the concern that agriculture land is losing its quality.

## 4. Urban environmental problems:

The analysts from among the poor in Lahore, Multan and Rawalpindi are very aware of the environmental issues that impact on their livelihoods. Polluted air resulted in many people suffering from asthma and other illnesses. Children were more prone to the risk of hepatitis and diarrhoea because of unclean water. The blocking of sewer pipes and inadequate arrangements for waste disposal

also caused problems in many communities. Analysts often reported the disinterest of government departments in tackling these problems.

### **3.6. Country capacity and institutional building (technical sustainability)**

Pakistan has some outstanding scientists, engineers, architects, planners, social scientists and managers, just as it has produced some brilliant economists. Yet, the quality of the average professional is quite modest. Environmental engineering is a relatively new speciality and there are probably not more than a hundred qualified experts in the country. Equally critical is the scarcity of qualified technicians who have working experience of installing and maintaining effluent treatment plants, incinerators, landfill sites, and so on. Public sector organisations are particularly bereft of quality human resources. For example, the Karachi Water and Sewerage Board reports that most of its engineers are not conversant with the use of levelling instruments, which is a skill essential for laying sewers<sup>31</sup>.

Management turnaround of such organisations has proved to be quite elusive. For example, during the early 1990s, a water *mafia* invested in a large number of tankers. In league with groups in the KWSB, they disconnected the water supply to a number of areas, making them dependent on the tankers for their daily water requirements. When the Pakistan Army investigated the KWSB and the water *mafia*, it discovered that the senior management was hostage to an extended kinship network controlling the middle management. The empty pipes had rusted and a restored water supply could not meet potable quality standards. The annoyed consumers thought they were better off with the tankers. The bottom line is that tankers are still in booming business in Karachi.

Building networks of positive cooperation between various government agencies and industry associations has proved to be most difficult. Only two combined effluent treatment plants have been built so far in the country, at Kasur and Korangi, both with tannery associations. While construction activity could have

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<sup>31</sup> Quoted in OPP-RTI, Sewerage, drainage and treatment plants, OPP-RTI, Karachi, 2000.

been accomplished in two years or less, building the institutional support system and undertaking baseline studies and detailed designs has taken a decade or more.

The limitations of international agencies for capacity building as pointed out earlier require precise and well thought out responses. A more consistent approach could imply focus on creating and enabling platforms for institutional reform rather than projects for capacity building.

### **3.7. Technology transfer**

There are some success stories of technology transfer, mainly when grounded in host institutions capable of absorbing the knowledge and skills. A number of donor projects have attempted transfer of environmental technology in recent years. In addition to specialised projects, for example, for hospital wastes management, obsolete pesticides disposal and introduction of eco-labelling schemes to textile industry, three conspicuous programmes have been:

- Technology Transfer for Sustainable Industrial Development (TTSID) funded by the Government of Switzerland and managed by the Sustainable Development Policy Institute (SDPI);
- Cleaner Production Centres (CPC) with the technical assistance of UNIDO; and
- Cleaner Production Programme (CPP, formerly Environmental Technology Programme for Industry, ETPI), supported by the Netherlands Government.

CPP in particular has been successful in creating a demand for environmental services in the large-scale manufacturing sector. CPP has disseminated information on appropriate technologies for cleaner production and end-of-pipe treatment to industry leaders and accomplished national demonstration projects to establish concrete experiences and results. This has succeeded in generating substantial investment in pollution prevention and abatement technologies. Industry has implemented projects worth Rs.250 million and has plans in hand for another

Rs.800 million. CPP has supported the establishment of environmental committees in industry associations that have in turn taken the leadership in developing environmental policies for their sector in advance of the enforcement of National Environmental Quality Standards (NEQS). CPP has put on the Internet a national database of environmental technology vendors and arranged environment industry trade shows.

There have been failures of technology transfer. The Asian Coalition for Housing Rights (ACHR) has detailed the constituent elements of “urban infrastructure boondoggles” and the “international tender scam” perpetuated by World Bank and ADB in Karachi and other Asian cities<sup>32</sup>. Over the past two decades, the Karachi Water and Sewerage Board (KWSB) has accumulated a debt of 46 billion rupees to finance a series of large sewerage projects, which treat less than 12 percent of the city’s sewage. ACHR reports that the ADB funded projects of KWSB superimpose entirely new sewage systems ignoring existing sewers and natural drains. They entail use of expensive and inappropriate technology. The designs by foreign consultants call for pumping sewage uphill over long distances to centralized treatment plants. They are to be built by foreign contractors at five to 15 times the local rates. Because the KWSB has not yet begun paying back past loans, provincial revenues badly needed for education and health are being increasingly diverted to servicing the debt.

An insider’s perspective on the elements that either promote or retard project implementation and the transfer of knowledge and technology is provided in the textbox below. It summarizes the experience of Bristol-Myers Squibb Pakistan during the process of installing a wastewater treatment plant at their facility in Korangi, Karachi.

**Box 1: Waste Water Treatment Plant at Bristol-Myers Squibb, Pakistan**

BMS Pakistan is a subsidiary of the BMS Company, a US transnational health care company. It has a 340,000 square feet facility at Korangi industrial area, Karachi that produces 20 million units of pharmaceutical items per annum.

Effluent quality was monitored in 1997 as a result of a Corporate EHS audit requirement. BOD, COD, TSS and phenol concentrations were observed to exceed standards. Initial estimates for setting up a wastewater treatment plant (WWTP) were collected. Similar plants were visited within the BMS group of companies that were being relocated or consolidated. However, the capacities of these plants were far greater than required at BMS Pakistan. Visits were also made to commissioned plants in Pakistan at the invitation of

<sup>32</sup> Housing 22-23.



## 4. Environmental Services Country Profile

### 4.1. Main players

#### 4.1.1. Federal Government

##### 1. Economic Coordination Committee (of the Cabinet):

The most important forum for decisions critically affecting the private sector is the ECC<sup>33</sup>. It is comprised of ministers in charge of the economic ministries and meets more frequently than any other senior policy-making body, almost every week. A recent ECC decision to allow the use of local coal in the cement industry has set back the agenda for environmental friendly industrialization in the country. Local coal has 4-5 percent sulphur and 20-25 percent ash content.

##### 2. Planning Commission, Centre for Research in Poverty Reduction and Income Distribution (CRPRID):

The Centre was established in 2002 with the support of UNDP with the mandate to undertake comprehensive poverty assessments and to review the government's evolving Poverty Reduction Strategy Paper (PRSP). It has produced the Human Condition Report 2002 that has highlighted the less than full treatment of the poverty-environment nexus in the Interim PRSP.

##### 3. Ministry of Commerce, World Trade Organisation (WTO) Wing:

The Ministry of Commerce is the focal point in the Government of Pakistan for WTO matters. The WTO Wing in the Ministry of Commerce is a small unit headed by a Joint Secretary, supported by two Deputy Chiefs, two Assistant Chiefs, and two Research Officer. However, it is responsible for the formulation of Government's WTO policy, which it does in coordination with concerned Federal Ministries, provincial governments as well as NGO stakeholders. The Wing also receives constant reports from the Permanent Mission to WTO at Geneva on country relevant developments at that forum. Similarly, the Wing regularly conveys

Government instructions to the Mission regarding the official stance to be adopted during various negotiations as well as other issues.

#### 4. Board of Investment (BOI):

The BOI has been established under a specific law to provide one-window facility for FDI, short of providing sovereign guarantees. Administratively a part of the Industries and Production Division but is functionally separate with the Secretary BOI having the same status as a Federal Secretary. The Chairman, BOI is directly responsible to the Cabinet Committee on Investments (CCOI).

Under its law, the functions of the BOI are to:

- Review national investment policies and recommend modifications to the Federal Cabinet;
- Initiate and consider sectoral investment proposals;
- Provide inputs to economic, fiscal and trade policies that have an impact on investment;
- Identify and promote investment opportunities in different sectors;
- Provide one-window facilities for the provision of all services and utilities to investors;
- Deal with matters relating to national industrial zones;
- Monitor progress of investment programmes and ensure prompt implementation through inter-agency coordination;
- Review investment promotion plans, and make transparent and simplified procedures and guidelines for investment promotion;
- Appraise and evaluate investment proposals and projects for the Cabinet;
- Appoint commissions, expert bodies and consultants to study various aspects of attracting investment;
- Maintain database of investment projects in the private sector that involve local and foreign capital;

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<sup>33</sup> Tahir, P. Environment and Development in Pakistan: From planning investment to implementing policies, LEAD-Pakistan, Islamabad, 2000

- Negotiate and finalize agreements for protection and promotion of investment with other countries and represent Pakistan on regional and international organizations pertinent to investment promotion;
- Collect, compile, analyse, maintain and distribute investment-related information;
- Promote a congenial environment for investment by ensuring de-regulation and removing other obstacles to investment;
- Develop a marketing, image-building and public relations strategy to generate interest in the Pakistani market;
- Communicate all major important administrative, financial and policy matters to the management of business undertakings falling in the purview of the investment policy;
- Establish Overseas Commissions consisting of prominent overseas Pakistani entrepreneurs;
- Consider individual investment proposals and categories needing special treatment and recommending additional incentives or relaxation of conditions under existing policies; and
- Determine the scale of fees and charges for services provided to investors.

From the above, it would be noted that BOI has a strong profile for foreign direct investments, but no mandate for environment, poverty alleviation, or community development. The BOI maintains close working links with the Privatisation Commission (below).

#### 5. Privatisation Commission:

Within the overall Government policy of strengthening the private sector's role in the provision of goods and services and with the approval of Cabinet, the Privatisation Commission (PC) is entrusted with selling federal government property—such as its shares in banks, industrial units, public utilities, oil and gas companies, transport companies, and infrastructure service providers—in an open and transparent manner. In addition to the sale of shares or assets, it may also offer concessions or the right to operate publicly owned assets, without selling the assets

themselves. The Government has promulgated the PC Ordinance 2000, which has strengthened the PC's legal authority as a corporate body for implementing the government's privatisation policy. The measure was taken to increase the PC's accountability and independence and is expected to provide greater comfort to investors. It also specifies that 90 percent of net privatisation proceeds will be allocated to debt retirement and 10 percent to poverty alleviation programmes.

#### 6. Ministry of Environment, Local Government & Rural Development

##### (MELGRD):

MELGRD is targeting industry associations and estates as potential partners in pollution abatement. MELGRD has conceived a two-pronged strategy for promoting environmental compliance. One thrust comprises baselines, environmental improvement plans and memorandums of understanding with specific industrial units. The other is litigation.

The main instrument of the Ministry is a \$42 million National Environmental Action Plan – Support Programme (NEAP-SP) with 6 components, including:

- a. Policy Co-ordination
- b. Pollution Control (including Pakistan Clean Air Program)
- c. Energy Conservation
- d. Dry land Management
- e. Ecosystems Management
- f. Grass Roots Initiatives

UNDP is contributing \$2.3 million. Much of the rest is to be raised from bilateral donors and multilateral agencies. Government contribution is planned to be 25 percent. This is in addition to the Rs.250 million allocated in the Public Sector Development Programme.

#### 7. Pakistan Environmental Protection Agency (PEPA):

It is the operational arm of the MELGRD for achieving compliance with the National Environmental Quality Standards. Government has established a tripartite implementation committee of Federal and provincial governments, industry and

NGO representatives with Dr. Parvez Hasan in the chair. The NEQS-IC has held three meetings and has plans to hold more meetings by rotation in the provincial capitals. The committee has also inspected factories and *nullahs* receiving industrial effluents. An earlier implementation committee had emerged with the concept of graduated pollution charges based on pollution loads assessed by the industrial unit itself. PEPA now intends to de-link the self-monitoring tool (SMART) from the assessment of pollution charges.

#### 8. Environmental Tribunals:

The Environmental Tribunal at Lahore has become operational. Recently, 49 cases were pending before it. On the other hand, a judge is still to be appointed to the tribunal at Karachi, though the Registrar is in place and can accept cases. One of the conditions of an ADB loan is the establishment of three more environmental tribunals in the country.

#### **4.1.2. Provincial Governments**

Punjab province had a large Environment Protection Department with around 240 staff. However, 80 per cent of the staff has been devolved to district governments, recently. Sindh, NWFP and Balochistan provinces have Environment Protection Agencies with skeleton professional staffing.

#### **4.1.3. District Governments**

The delegation of environmental functions to local governments under the Devolution Plan is untested in practice. The pre-requisites for an effective transfer include building up the capacities of the environmental officers of district governments. Some *Nazims* (elected representatives) and District Coordination Officers have asserted that rights and responsibilities under the Pakistan Environmental Protection Act, 1997 have been automatically delegated to districts under the Local Government Ordinance, 2000. The Punjab Secretary, Environment Protection Department has in fact dumped enforcement responsibilities to the lower governments. The way these issues are resolved by the recently elected Federal and

provincial governments could be crucial for embedding sound environmental practices in the country.

#### **4.1.4. Cities**

Pakistan has 700 cities and towns, but urban governments have been merged with district and sub-district administrations under the recent Local Government Ordinance, 2000. City district governments have been notified where the populations are predominantly urban. Solid waste management is the main environmental service provided departmentally by city district governments, while autonomous boards reporting to city governments provide water supply and sewerage services.

#### **4.1.5. Civil Society Organisations**

Civil society is a broad inclusive concept for human organisations outside the family, State and private sector<sup>34</sup>. Some of the more formally organised civil society segments are registered as NGOs under various laws. There has been rapid growth of NGOs in Pakistan during the last decades, from around 8,000 in 1988 to more than 50,000 at present. A sub-set of these NGOs focuses on community mobilisation for self-help development and environmental management.

The Orangi Pilot Project (OPP) is a leading non-governmental organisation working since 1980 to support people's efforts in upgrading Orangi township, a large *katchi abadi* (low-income informal settlement) of over a million persons in Karachi. The OPP model of sanitation comprises of two components. Internal development consists of house latrine, lane sewer and collector sewer at neighbourhood level.

OPP has demonstrated that communities can finance, manage and maintain internal

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<sup>34</sup> Kumi Naidoo defines CSOs as encompassing ethnic and traditional groups, burial societies, mutual savings and self-help groups; sports clubs; faith-based organisations; social service and health associations; cooperatives and credit unions; trade and professional associations; advocacy, research, grant making, and environment and development organisations; women, youth, and students groups; and culture and arts societies. Some others would include political parties when out of power and the independent media.

development. External development consisting of trunk sewer, treatment plants and outfalls are the responsibility of the government.

In Orangi, people have invested \$1.5 million on internal development, constructed 1.5 million running feet of sewerage lines and sanitary pour-flush latrines in 90,000 houses. If a government contractor had done the same work, it would have cost six to ten times more, and if it had been done through a foreign aided loan project, it would have cost even more<sup>35</sup>. The OPP model has been replicated in 42 settlements in Karachi and in seven cities across Pakistan with varying degrees of success.

#### **4.1.6. Communities**

Community organisations exist all over Pakistan. However, the main function of most is to lobby government agencies and politicians for development.

Development projects are handed out as patronage and without proper planning. Implementation is often substandard and inadequate. More often than not, the intended benefit does not materialise, or there are no capacities to maintain the projects. Some communities have lost faith in the lobbying approach and are looking for alternatives.

#### **4.1.7. Private sector**

##### 1. Federation of Pakistan Chambers of Commerce and Industry (FPCCI):

It is the apex organisation of 70 industry associations and regional chambers. A seminar at FPCCI (May 2002) with the NGO, Foundation for Progress, on “industrial ecology”, called for an environmental policy that should be “non-confrontational, co-operative, less-fragmented, and capable of being tailored to suit the varying circumstances”. However, politics among its office bearers and the absence of a dedicated secretariat to service its environmental standing committee, have constrained the effectiveness of FPCCI.

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<sup>35</sup> Orangi Pilot Project, (1988). Proposal for a Sewage Disposal System for Karachi, City Press, Karachi

## 2. Industry Associations:

Pakistan Tanners Association (PTA), All Pakistan Textiles Processing Mills Association (APTPMA) at the regional level in Lahore and Khurrianwala near Faisalabad, and Pakistan Society of Sugar Technologists (PSST) are the major progressive associations leading the campaign for cleaner production among member enterprises. The pharmaceutical sector is likely to follow suit, owing technology sharing among its professionals. By contrast, the cement, the steel re-rolling and melting mills, and the vegetable ghee industry associations are among the more regressive<sup>36</sup>.

## 3. Private sector industry:

In addition to multinational corporations and export-oriented industry, some progressive industrial units catering to the domestic market are also investing in cleaner production and effluent treatment. Plant and equipment packages of international technology suppliers that include treatment plants, ISO 14000 requirements, and corporate self-image appear to be the main drivers in the absence of legal requirements.

## 4. Informal private sector:

According to the URC, a well-organised and established informal sector collects for recycling around 30 percent of the solid waste in Karachi (approximately 2100 tons out of the total 6500 tons generated every day). The network of waste pickers collects paper, plastic, bone, glass, and metal in the city and uses parks, open spaces and drains as sorting areas. The sorted waste is transported to Shershah Market for recycling. Various informal units in Shershah convert the waste into raw materials for dispatch to different industries in and outside Karachi.

### **4.2. Priority sectors (existing and emerging):**

#### **4.2.1. Existing priorities**

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<sup>36</sup> CPP/ETPI, 1996 –2002. Progress Reports, NEC, Karachi, Lahore

### 1. Clean Water and Sanitation:

Clean water and sanitation are two priority programmes of the 10-Year Perspective Plan that have been reinforced by decisions and proclamations at recent international forums (MDG and JPA, WSSD). However, as noted earlier, resource mobilisation will be a daunting challenge.

### 2. Combined Effluent Treatment Plants (CETP):

The current priority is to sort out the institutional issues being faced in commissioning and smooth operations of the combined industrial effluent treatment plants at Kasur and Korangi. Once these issues are sorted out, there is potential for more combined effluent plants. The most advanced in terms of planning are:

- Sialkot CETP, which is at initial design stage;
- Sindh Industry and Trade Estate (SITE) has already tendered for CETP and recycling of wastewater to an international firm;
- Korangi Area Industrial Association (KATI) has prepared a comprehensive project document for a series of combined effluent treatment plants. At present, KATI is in the process of negotiating with the local government and international financing institutions; and
- Multan tanneries are in initial stages of planning for the re-location to Multan Industrial Estate. The tanneries are planning to install a combined effluent treatment plant there.

Other potential sites are Kalashah Kaku Industrial Estate and textile processing mills in Faisalabad and Khurrianwala. Industrial estates at Gujranwala, Sahiwal, Peshawar and Islamabad are also prospective candidates for CETP.

#### **4.2.2. Emerging priorities**

### 1. Cleaner Production:

The objective of the Industrial Efficiency and Environmental Management (IEEM) sector development programme is to combine policy and institutional reforms with

investment in enhancing industrial production efficiency. The assistance from the Asian Development Bank will comprise of policy review and a line of credit for anti-pollution equipment. NORAD will implement the capacity building component.

There are plans to expand the Cleaner Production Centre at Attock Refinery Limited (ARL). It was set up with UNIDO support. The main component is a Cleaner Fuels Programme. The outreach will be extended with PEPA support.

## 2. Clean Air Programme:

The strategy paper for the Clean Air Programme has been drafted. It is based on ambient air quality monitoring conducted with the help of JICA at Islamabad, Rawalpindi and Lahore. PM<sub>10</sub> is much above WHO standards, while concentrations of nitrous oxides in Lahore and Islamabad are also higher than the standards. Industrial emissions monitoring is one of the 11 recommended mitigation measures, but it is ranked 10<sup>th</sup> owing to implementation barriers.

## 3. Hazardous Wastes:

Hazardous Wastes and Substances is an un-funded programme area that is given high priority by the PEPA. Mr. Asif Shuja Khan, Director General, PEPA confirms that the agency is seeking international assistance to set up a Chemicals Management Cell.

### **4.3. Regulatory regime governing role of private/public, national/foreign investors and service suppliers**

#### **4.3.1. Enforcement of Pakistan Environmental Protection Act, 1997:**

Discussions were held with two Director-Generals of the Ministry of Environment and with the Chairman, NEQS Implementation Committee to understand the near term potential for legislation driven demand for environmental services. While emphasizing various immediate and underlying causes, all three key respondents concur that there has been no progress toward NEQS implementation, specifically the enforcement of pollution charges.

Mr. Jawed Ali Khan, Director General (Environment) has emphasized the current economic recession and the limited technical capacities of provincial EPAs, for example to measure pollutants, as the key impediments. Mr. Asif Shuja Khan, Director General PEPA has concerns about provincial and local government capacities to enforce rules fairly and transparently. Dr. Parvez Hasan has talked to the Finance Minister and Governor, State Bank. He states that they are not convinced that it is the appropriate time to enforce environment legislation.

Till recently, self-reporting and monitoring by industry was seen as a key innovation for compliance with the NEQS. It had been argued that SMART could obviate the need for baseline inspections by government officials and the corruption associated with such intrusive checking. However, now it seems that the approach has run into several legal and technical problems. SMART was based on an understanding between industry and government, it is not written into the law (PEPA-97). The software needs to be de-bugged but contested intellectual property rights are an impediment to upgrading. The use of the tool can be optimised with a wide area network, but that technical development has not yet matured. As such, the reporting system has been put into abeyance.

#### **4.4. Public Perceptions on Environmental Services Issues**

This sub-section is based on impressions. Some commonly repeated subjective opinions are as follows:

- In Pakistan, conservancy charges are a part of water bill, because concept of sewage disposal as a service is not well developed. This observation applies to upper income neighbourhoods with underground sewers.
- People in poor urban neighbourhoods are willing to pay for a solid waste collection service that has a personal face and demonstrates that it is part of an effective system (experiential learning of Society for Environmental Awareness which run a solid waste collection service in Marriabad, Quetta).
- Customers don't like sudden hikes in rates.
- Public utility agencies are corrupt and have excessive overheads (a widespread belief across all parts of the country).
- Politically elected government are more responsive to people's sensitivities on utility prices. (One of the first acts of the recently elected government was to reduce the electricity charges).

#### **4.5. Experience to date on privatisation, foreign participation**

Little privatisation has occurred in Pakistan to date. There have been only four major privatisations involving a transfer of management control: a large power generation company, KAPCO and three major banks, MCB, ABL and UBL. The other privatisation transactions either kept management control with the government (such as Pakistan Telecommunication Corporation PTCL) or were small industrial units.

Despite intensive efforts for the sale of larger companies in the banking, energy and telecommunications sectors, problems during the preparation process have led to delays or removal of several units from the privatisation programme. Several companies were found to be unattractive to buyers. With the assistance of the PC, they were or are being liquidated by their respective ministries. Litigation slowed or stopped a few other privatisations. As a result, only eight relatively small transactions were completed in 2000 and 2001, while UBL was privatised in 2002. Much of the slowdown stemmed from delays in decisions on pricing or regulatory policies and requests by ministries for unbundling and/or restructuring. In some

cases, limited investor interest coupled with requests for delays by some interested parties caused delays. On-going investigations and audits on several transactions by various investigative agencies further exacerbated the situation.

Pakistan remained a backwater for Foreign Direct Investment (FDI) during recent years, as is apparent from Table 10. FDI inflows have in fact been at the level of Least Developed Countries or even less.

Table 10: FDI inflows per capita of selected countries and country groups  
(US dollars)

<b>Country/Group</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
European Union	341	699	1,298	2,147	857
United States	377	628	1,010	1,062	435
All Developing Countries minus China	43	41	52	55	43
Least Developed Countries	4	6	8	6	6
Pakistan	6	4	4	2	3

Source: <http://stats.unctad.org>

#### **4.6. Perceived future trends**

The current privatisation programme includes the banking and finance, oil and gas, telecommunications, power, and industry sectors. However, the privatisation agenda is much broader. The Government is committed to privatising all its power distribution companies and all its thermal generation plants. In some areas, such as the national flagship airline, PIA, the Pakistan Steel Mill, and Pakistan Railways, the Government is attempting to turn around the companies before considering the privatisation option.

The following quotation from the Privatisation Commission website establishes its longer term intentions:

“While there has been little official discussion of privatising other sectors, many possibilities exist. For example, the Federal Government owns substantial amounts of real estate that could be privatised. The post office, which has been successfully privatised in several countries, could also be a candidate. Both ground and surface water resources could be privatised by assigning tradable property rights to water resources to existing users along with the transfer of irrigation infrastructure. This is working well in some Latin American countries and Australia.

“Some Latin American countries have also successfully privatised roads, bridges, and water companies and are encouraging the private provision of education and health services by funding such activities rather than investing in them and operating them. The services themselves will be provided by private investors, NGOs, or community groups. International experience has shown that the public provision of social services typically does not help the poor, who are often excluded from services or whose quality is too poor to be useful. Options such as voucher schemes and lifeline tariffs can ensure that the poor can avail of the privatised services. Such initiatives may also prove fruitful in Pakistan”.

In short, the potential privatisation agenda is large and could include public utilities providing environmental goods and services. The ambitions could be fuelled by the growth of remittances, an unprecedented build up of foreign exchange reserves (\$10 billion), and a revival of FDI in recent months.

## 5. Environmental Services under GATS

### 5.1. Definition/coverage of sectors in environmental services

According to GATS, and in accordance with the United Nations Central Product Classification (CPC), environmental services include: (a) sewage services; (b) refuse disposal services; (c) sanitation and similar services; (d) other (cleaning of exhaust gases, noise abatement, nature and landscape protection services, and other environmental services n.e.c). This classification reflects the traditional view of environmental services as largely public infrastructure services supplied to the general community, and focuses mainly on waste management and pollution control. OECD argues that the GATS classification is narrow because (i) it is not clearly organised according to the provision of services for specific environmental media (e.g. water, soil, air, noise); (ii) it focuses on ‘end-of-pipe’ approaches with little coverage of pollution prevention and sustainable resource management services; (iii) it covers the services provided in the operation of certain facilities, plant and equipment, but not the design, engineering, R&D, and consultancy services necessary for building and upgrading them; (iv) it focuses on services supplied to the general community and overlooks those supplied directly to the industry<sup>37</sup>.

The United States proposal suggests setting up a core list of environmental services, such as in the current classification, and a list of environmentally-related services that are necessary to the provision of environmental services, such as business services, architectural services, recycling services for a fee, construction, engineering, and consulting services. Both core and related services should be liberalised. USA proposes that the specific focus of such liberalisation would be most beneficial in the context of GATS mode 3 (commercial presence) and mode 4 (movement of natural persons)<sup>38</sup>.

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<sup>37</sup> OECD, Environmental Goods and Services – The benefits of further global trade liberalisation, Paris, 2001

<sup>38</sup> Zarrilli, S. International Trade in Environmental Services and the Developing Countries, UNCTAD, 2003

The proposal of the European Community foresees the creation of seven ‘purely’ environmental sub-sectors, namely, water for human use and wastewater management; solid/hazardous waste management; protection of ambient air and climate; remediation and cleanup of soil and water; noise and vibration abatement; protection of biodiversity and landscape; other environmental and ancillary services. Dual use services, such as business, R&D, consulting, contracting, engineering, construction, distribution, and transport services with environmental components, should remain classified elsewhere. The EC proposes that these services could be included in a checklist that could be used as a aide-memoire during negotiations. The proposal encourages liberalisation without restrictions on modes 1, 2 and 3. It seeks further discussions on how to facilitate the temporary movement of natural persons for the provision of specific environmental services.

The Canadian proposal encourages liberalisation in all modes of delivery and in all sub-sectors in the present list (core services) and other related services (non-core or dual use services). The Swiss proposal suggests a classification in six sub-sectors very similar to those proposed by the EC. The Australian proposal supports the re-classification suggested by the EC. It stresses the importance of liberalising mode 3 and calls for increased transparency in national regulations of the sector.

The Cuban proposal is based on the assumption that opening up of the markets will contribute to the development of the environmental services in developing countries if appropriate conditions are established for health, safety and environmental protection, and domestic capacities are strengthened. Domestic capacity-building must be one of the guaranteed results of negotiations on environmental services. For this to happen, transfer of technology and associated know-how, the creation of national technical capabilities and the conditions favourable to the export of services from developing countries should be ensured.

Columbia notes that if international trade in services is to become more balanced, the developed countries will need to take commitments on market access

concerning the movement of individuals so as to allow the procurement of environmental services at the international level.

## **5.2. State of play in request/offer process**

The formal state of play in the request/offer process cannot yet be determined, as no information has been released. Ministry of Commerce, WTO Wing has informed only that six requests have been received, mainly from developed countries. However, leaked documents relating to the European Commission's requests to various countries, including Pakistan, are available.<sup>39</sup>

The Environmental Services sector has not yet been committed by Pakistan. The EC has requested that Pakistan present its offer in accordance with the EC's proposal for the classification of environmental services. The formal request is as follows:

### "A. Water for Human Use and Waste Management

Water collection, purification and distribution services through mains, except steam and hot water

This sub-sector only concerns the distribution of water through mains' (i.e. urban sewage systems). This excludes any cross-border transportation either by pipeline or by any other means of transport nor does it imply access to water resources.

- Mode 3: Take full commitments under MA and NT
- Mode 4: Commit as referred in the section "Horizontal commitments"

Waste water services (CPC 9401)

- Mode 3: take full commitments, i.e. schedule "none" under MA and NT
- Mode 4: Commit as referred in the section "Horizontal commitments"

### B. Solid/Hazardous Waste Management

Refuse disposal services (CPC94020)

Sanitation and similar services (CPC 94030)

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<sup>39</sup> <http://www.gatswatch.org>

### C. Protection of Ambient Air and Climate

Services to reduce exhaust gases and other emissions and improve air quality (CPC 94040)

### D. Remediation and Cleanup of Soil & Water

Treatment, remediation of contaminated/polluted soil and water (part of CPC 94060)

### E. Noise & Vibration Abatement

Noise abatement services (CPC 94050)

### F. Protection of Biodiversity and Landscape

Nature and landscape protection services (part of CPC 94060)

### G. Other Environmental & Ancillary Services

Other environmental protection services not classified elsewhere (CPC 94090)

For each of the above sub-sectors:

Modes 1 (where technically feasible), 2 and 3: Undertake full commitments for market access and national treatment.

Mode 4: Commit as referred to in the section “Horizontal commitments”

Furthermore, in terms of horizontal commitments, in mode 3, the EC has requested Pakistan to eliminate restrictions on the form of establishment and maximum foreign equity participation of 51 per cent. It has also sought elimination of the requirement for case-by-case authorization for the acquisition of real estate. It has asked for a clarification of the restriction on the funding of representative offices. In mode 4, EC has asked for elimination of quantitative restrictions (50% limit) on the number of foreign executives and specialists in any undertaking. It has asked for clarification on the degree of affiliation between companies that is required for a transfer to be covered under the provisions for intra-corporate transferees. EC has

requested Pakistan to take a commitment relating to business visitors and contract services suppliers.

A scrutiny of the WTO Services Database Output confirms that Pakistan has not made any sector-specific commitment in the Environmental Services sector, so far. An informal unsigned note from the WTO Wing, Ministry of Commerce for this Study is reproduced below:

“Environment Services is one of the main sectors under GATS. Six requests have been received, mostly from developed countries, and quite similar to each other. They seek full commitment for market access and national treatment for wastewater treatment, solid waste management, and other environmental services in all four modes, i.e. the offer should state “none” in the relevant columns.

“Mode 1 is not relevant.

Mode 2 relates to education and training abroad, and in this area, Pakistan is following a flexible policy.

Mode 3 Commercial presence. In principle, Pakistan is in favour of attracting FDI in environmental goods and services; which is a prospective growth sector in developing countries. For example, any major town would benefit from a wastewater treatment plant that also produces fertiliser as a by-product, but we do not have the requisite capital and expertise.

Mode 4: Movement of natural persons; Pakistan has applied a horizontal commitment that 50% of persons should be professionals.

“State-provided services are outside GATS. There is need to build up the capacities of local governments to manage international contracts. The commitments will only become binding when Pakistan decides to privatise environmental utilities and services.

“The requests have been circulated along with an explanatory note to the Ministry of Environment, but they have not yet responded. As such, it will not be possible to

provide the initial response during March 2003. It is perceived as likely that the deadline will be extended. The point to note is that Pakistan already has a regime for foreign companies and natural persons that is more liberal than committed by Pakistan in its schedule under WTO.

“Regarding the proposed revision to the W/120 list, it is agreed that there is a scope for improvement in classification. It is not just a problem in the sub-sector of environmental services. For example, nursing is classified in a different sector from Medical Services. As such, it is feared that revision to W/120 may open a Pandora’s box, unless a comprehensive approach is taken to re-classify all services”.

### **5.3. Analysis of Potential Impacts on Human Development**

This Study has so far described the HD situation in Pakistan across various dimensions, such as basic and fair access to environmental services. It has also described the requests for liberalisation of these services under GATS. A Social Impact Assessment (SIA) framework and matrix is proposed for seeking the response of informed stakeholders to clarify the potential impact of the liberalisation of a particular environmental service on human development in Pakistan and the significance of that impact (Fig. 8). While this can ensure that the right questions are asked, a proper assessment can only emerge from wide-ranging, inclusive and structured consultations. However, an illustration of how the tool works can help in subsequent applications. For this purpose only, a worked example of the SIA matrix is provided (Fig. 9) and some ‘notional’ implications are discussed.

**FIGURE 8: SOCIAL IMPACT ASSESSMENT (SIA) FRAMEWORK**

*Privatisation And Liberalisation Of Environmental Services In Pakistan*

<b>Impact /ES sectors</b>	<b>Assured minimum access</b>	<b>Assured fair access</b>	<b>Technology transfer</b>	<b>Employment generation</b>	<b>Economic efficiency</b>	<b>Environmental quality</b>	<b>Technical sustainability</b>	<b>Financial accountability</b>	<b>Scores (range +/- 400)</b>
<b>Water for human use</b>									
<b>Wastewater management</b>									
<b>Solid/hazardous waste management</b>									
<b>Protection of ambient air and climate</b>									
<b>Remediation and clean up of soil &amp; water</b>									
<b>Noise and vibration abatement</b>									
<b>Protection of biodiversity and landscape</b>									
<b>Other environmental &amp; ancillary services</b>									

**Magnitude/Importance Scales: Magnitude = -5 to +5; Importance = 1 to 10**

**Figure 9: ILLUSTRATION OF SOCIAL IMPACT ASSESSMENT (SIA)**  
*Privatisation And Liberalisation Of Environmental Services In Pakistan*

<b>Impact /ES sectors</b>	<b>Assured minimum access</b>	<b>Assured fair access</b>	<b>Technology transfer</b>	<b>Employment generation</b>	<b>Economic efficiency</b>	<b>Environmental quality</b>	<b>Technical sustainability</b>	<b>Financial accountability</b>	<b>Scores (range +/-400)</b>
<b>Water for human use</b>	-5/10	-3/10	+2/5	-3/6	+4/5	+2/7	+2/5	+3/3	<b>-35</b>
<b>Wastewater management</b>	+1/5	+1/5	+4/10	+1/4	+4/4	+5/9	+3/4	+3/3	<b>136</b>
<b>Solid/hazardous waste management</b>	-3/5	-2/5	+1/5	-5/6	+4/3	+3/7	+1/3	+1/2	<b>-12</b>
<b>Protection of ambient air and climate</b>	+4/2	+3/2	+4/2	+2/2	+4/2	+2/5	+1/3	-1/2	<b>45</b>
<b>Remediation and clean up of soil &amp; water</b>	+2/5	-2/5	+5/2	+1/2	+3/2	+2/4	+1/2	-1/2	<b>26</b>
<b>Noise and vibration abatement</b>	+5/2	+2/2	+5/2	+1/1	+2/2	+3/5	+2/2	+1/2	<b>50</b>
<b>Protection of biodiversity and landscape</b>	-3/3	-2/3	+3/3	+1/3	+1/3	+3/6	+1/3	-1/2	<b>19</b>
<b>Other environmental &amp; ancillary services</b>	??	??	??	??	??	??	??	??	<b>?</b>

**Magnitude/Importance Scales: Magnitude = -5 to +5; Importance = 1 to 10**

The first step in the SIA framework is to make an assessment of the potential direction and magnitude of the impact of liberalisation of ES on each HD dimension. The second step is to assess the significance or importance of that impact. The two numbers are multiplied and summed along the row to establish whether the overall score is positive or negative. Negative scores indicate the need for caution while positive scores indicate opportunities. It is furthermore possible to rank the opening up of environmental services for greater or lesser beneficial or negative outcomes for human development.

In this particular version of the framework, environmental services as proposed to be re-classified by the EC are applied to the HD dimensions. It would be equally valid to use the existing W/120 classification, if it is understood that the same would continue to be in use.

The notional impacts and weights for Assured Minimum Access, the first column, in the worked example are discussed below as an illustration of the reasoning process only. Depending on their experiences and expectations, some stakeholder groups could emerge with quite different impacts and weights.

Assured Minimum Access:

- Privatisation and liberalisation of water supply services could severely impede the access of the poor to potable water, particularly in large urban areas, hence the maximum negative impact. Water for drinking is most important, hence the maximum weight to the negative impact;
- A small minority in Pakistan has access to sewage treatment services. Privatisation and liberalisation of urban sewage systems may even extend the coverage to some un-served poor; hence the potential small positive impact, with considerable significance for the health of the poor;
- Liberalisation of solid waste management services could impede the basic access of the poor to the service, and it is a matter of considerable significance;

- It would be impossible to impede the basic access of the poor to the benefits of any air pollution abatement programme; however, the significance of the improvement in outdoor air could be marginal as in-door air pollution is the major health hazard for the poor;
- Remediation and clean up of soil and water would have generalised benefits, that could be quite significant for the poor living on marginal lands;
- It would not be possible to restrict the benefits from noise and vibration abatement, but the extent of the benefit may be small;
- It would be possible to restrict the access of the poor to fenced off biodiversity protection projects, and this could be quite significant in some areas;
- It is not possible to anticipate the direction and magnitude of the impact of unspecified environmental services and their importance.

In a similar vein, the impact and significance of the impact of wastewater management liberalisation, the second row, across the HD dimensions is discussed below:

#### Waste Water Management:

- A minority has assured minimum access to wastewater management at present; liberalisation could even extend the benefit to some un-served poor, with considerable significance for their health;
- The small minority that has access to wastewater treatment will pay more for a privatised and liberalised wastewater treatment service. Whether equity is enhanced or retarded will depend on how the profits are used. A small positive impact is assumed and that could be of considerable significance.
- There could be significant technology transfer with wastewater treatment plants that generate a profitable by-product, such as fertilisers and fodder for livestock. The sewage treatment plants currently installed are not being properly operated. Hence the potential positive impact has a huge significance, constrained only by problems that are more institutional than technical.

- With both retrenchment and expansion as and where needed, the net employment impact of the privatisation and liberalisation of municipal wastewater treatment is uncertain, perhaps it would be slightly positive and of some importance;
- Expectations of substantial gains in economic efficiency would drive the liberalisation of wastewater treatment services, hence the high positive impact, but the international services will continue only if the gains in economic efficiency materialise and profits can be made and repatriated, hence the medium importance;
- The expectations of substantial gains in environmental quality and integrity from wastewater treatment will be the driving force for privatisation and liberalisation, and the result could be hugely significant.
- Expectations of substantial gains in technical sustainability in wastewater treatment will be a driving force for the privatisation and liberalisation, and the outcome will be of some significance.
- The expectation of substantial improvements in financial accountability and transparency in wastewater treatment is likely to be realised and would be of some importance.

#### **5.4. Strategic responses**

With coalition building around such and similar reasoning, Pakistan could develop strategic responses at two levels; the macro-level in response to the WTO in general, and at the specific level in response to the requests under GATS for opening up environmental services.

One large strategic opportunity in the immediate future for Pakistan to grow out of an accumulated external debt is to achieve volume growth in higher value-added (HVA) exports in the textiles and clothing sector post-ATC phase out. For example, a 15 percent growth per annum in HVA T&C exports could reduce external public

debt servicing from 34 percent of foreign exchange earnings (2002) to 11 percent by 2007<sup>40</sup>.

One risk factor among others to this scenario is the Northern concern about lax production and environmental standards in Pakistan. Some of the environmental standards that industrialised countries seek to apply to Pakistan are manifested in their specific national environmental laws. Other standards are voluntary in nature, such as eco-labelling schemes and environmental management systems, and have come into force as a result of either consumer choice expressed through buying patterns or socio-cultural pressure, expressed through media campaigns, protests and boycotts<sup>41</sup>.

Pakistan can take two flanking measures. First, it can promote the adoption of the ISO 14000 series by the textiles and leather sectors along with an appropriate eco-label for the EU market. So far, Pakistan ranks 56<sup>th</sup> out of 103 countries with only ten ISO 14000 certified firms out of the world total of nearly 36,000.

Second, it can liberalise the trade in industrial effluent treatment services. Institutional complexity has caused huge delays in the commissioning of the country's first two CETPs, and raised questions about their future smooth operations after donor phase out. A liberalised private sector regime for all subsequent CETPs will bring in FDI, break the institutional gridlock, and provide respectability to Pakistan's tanners and textile processors in the world markets.

A longer-term strategic opportunity for Pakistan to grow both out of external debt and poverty is to invest in the human and institutional development of communities of the poor, both in the cities and rural areas. OPP and other NGOs have demonstrated that empowered communities can generate their own further development. Two key risk factors are continued high levels of illiteracy and

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<sup>40</sup> Sakib Sherani, *Escaping the Debt Trap*, ADB, Islamabad, 2002

<sup>41</sup> Shaheen Rafi Khan et al. *Greening the Export Sector*, SDPI, Islamabad, 2002

morbidity. The second risk factor can be flanked by OPP style internal development, focusing on lane sanitation, community-based solid waste management and hygiene awareness. Pakistan should be averse to any privatisation and liberalisation that reduces the scope for such community-based environmental services.

The strategic responses to the particular requests for binding commitments to market access and national treatment for particular environmental services could be based on discussions resulting from review of SIA scores emerging from stakeholder consensus. To recall the scores from the illustrative matrix, the notional strategic responses could be:

- Pakistan should be cautious about any privatisation and liberation of water for human use owing the large negative HD score attached to such a measure;
- It should seek to privatise and liberalise wastewater treatment, in particular, offer MA and NT for industrial wastewater treatment services;
- Pakistan should be cautious about liberalising solid waste management, particularly because of the negative employment impact and its significance for the poor;
- Pakistan should proceed with the liberalisation of air clean up programmes and associated services to the extent feasible;
- Similarly, it could seek opportunities for liberalising the soil and water remediation sub-sector;
- Pakistan should open up for noise and vibration abatement services;
- It should also positively review the opening up of biodiversity and landscape protection services. Liberalisation should be subject to prior revision of National Parks and Protected Areas laws to ensure community participation in management plans and to protect the use rights of the poor;
- It should adopt a cautious approach to the unknown scope of ancillary environmental services.

A further step on the basis of such reasoning could be linkages between MA and NT. For example, Pakistan should promote internationally the valuable environmental services provided by its skilled plant and animal breeders, and seek market access for biodiversity conservation and landscape protection services.

#### **5.4.1. Domestic legislation/ regulatory framework**

Government is facing difficulties in making and enforcing rules and regulations under the Pakistan Environmental Protection Act, 1997. In the absence of certified laboratories and inadequate staff with provincial EPAs for technically sound and transparent pollution measurements, government is hesitant to enforce the National Environmental Quality Standards (NEQS) and related pollution charges. Strategic deployment of existing resources is essential for a targeted impact.

At a minimum, Government of Pakistan and provincial governments should make plans and supporting regulatory frameworks for:

- Compulsory (re-) location of polluting export industries in industrial estates;
- Enforcement of NEQS using the bubble concept and collection of aggregated pollution charges from existing and planned Estates;
- Offsets for payments to private sector effluent treatment service provider; and
- Liberalised regime for private sector effluent treatment facilities and services.

#### **5.4.2. Consumer protection**

It is best left to emerging civil society organisations. A consumer protection network on health issues is already active, keeping a vigil on internationally banned medicines that would otherwise continue to be sold locally by multinational and domestic pharmaceutical firms. Similar groups are active on more local scales against food adulteration and other such issues. When Pakistan opens up its environmental services sector to international competition, a watch group is certain to arise.

#### 5.4.3. Social safety nets and safeguards

The poor in Pakistan are generally not happy with the administration of Zakat funds and other social safety net instruments, like the food stamp scheme. It may be better not to rely on administratively demanding procedures to mitigate the effects of any privatisation and liberalisation of water supply, municipal wastewater and solid waste management.

#### 5.5. Country offers – what sub-sectors subject to what conditions?

The trade in environmental services is already relatively free of restrictions in Pakistan. One simple reason is that most of the investment in the environmental sector has been undertaken with the grant money of bilateral donors or the soft loans of multilateral banks. The former have sought to reduce ‘country-content’ (or at least its profile) in recent years, while the rules of the latter for international competitive tendering have ensured a largely open market.

The partnerships resulting from these projects have in a number of instances contributed quite dramatically to strengthening the technological capacities of domestic firms. In the last decade, a fresh start-ups in the environmental services sector have acquired state-of-the-art technologies, reached out to regional markets that otherwise would be difficult to access, and become part of an international network.

Pakistan does not yet have a significant domestic environmental services sector. As such, there are no protection issues. In principle, Pakistan should be willing to open up any environmental services sub-sector, if there are significant macro-economic, industry sector and consumer advantages of doing so. However, there may be no present advantage in taking a leadership position on this sub-sector of GATS.

## 6. Future Policy Implications from an HD perspective

The essential point is that the collective provision of public services enables low-income households to access essential services at lower costs. In the event that these services are obtained on an individual basis, the high unit costs are certain to render services out of reach for low-income groups and to effectively exclude them from consumption. On the other hand, the public provision of services is frequently of poor quality while subsidies tend to be appropriated by the non-poor. Privatisation and liberalisation could extend the outreach of better quality services. A wide range of academic and professional opinion may be found on this contentious subject. Policies have to be made keeping in mind the interests of all segments of society; the powerful, the voiceless, and the un-born generations.

## Defining Human Development

The premise that people are the real wealth of nations, and the real end of development, led UNDP to define human development as a "process of enlarging people's choices". The three essential choices: to lead a long and healthy life, to acquire knowledge, and have access to resources needed for a decent standard of living. Additional choices range from socio-economic and political freedoms to opportunities for being creative and productive, and enjoying personal self-respect and guaranteed human rights (HDR 1990, p.10). The paradigm of human development views poverty as a deprivation not only of incomes, but of choices and opportunities to lead the kind of life that people have reason to choose and value. The notion of human capabilities thus focuses on what people are actually able to do and what people are able to be. Higher income is seen as necessary for its 'instrumental' role in expanding opportunities for achieving many of these broader goals. Haq (1995) sees the following four components being essential to human development:

**Empowerment** -- This is an all-encompassing notion that addresses the people's capability to shape the processes and events that affect their lives, not just on the economic front, but also the socio-political-cultural. Going beyond the notions of 'basic needs' for the poor, often with an accent just on commodity possession, the human development paradigm downplays this as being paternalistic. The paradigm attaches importance to issues of dignity and self-respect, which has a serious bearing on how people engage in processes that lead to higher incomes and capabilities, and political voice.

**Productivity** -- Investments in enhancing human potentials so that greater productivity that lends itself to higher growth is an important subset of the paradigm. Human development is a means to higher productivity - a well nourished, educated, and alert labour force is an important productive asset. But rather than viewing humans as mere inputs into the production process, this paradigm views them broadly as ends of development itself. This thus implies that there is a crucial distinction between human resource development and human development, with the former just being one aspect of the latter.

**Equity** -- Enlargement of people's choices requires that they can access opportunities equitably. This often implies that the prevailing power structures have to improve, such as better distribution of assets like land and credit, transfer of public incomes through fiscal measures, and socio-political reforms that enhance opportunities for participation of certain groups, ethnicity and gender.

**Sustainability** -- Not to be confused with the renewal of natural resources only, sustainability in human development terms means that the physical, human, financial and environmental resources are governed by the current generation in a way that does not prevent the next generation from improving its own welfare. It also implies that international commitments made by governments do not impede the economic and social development and cultural integrity of future generations.

The challenge facing the Asia Trade Initiative is, thus, to relate these concepts to trade issues and policies.

## Take the Initiative

The Asia Trade Initiative aims at promoting debate on trade and human development issues. We would therefore welcome your comments on our studies. Our web page, [www.asiatradinginitiative.org](http://www.asiatradinginitiative.org) provides further information about the programme and its activities. In case you want to participate in them, please contact us. You will also find a complete downloadable copy of all the Technical Support Documents.

Furthermore, we would like to receive your opinion on our studies. Once you have read them, we would appreciate your feedback to the following questions:

How useful was this paper to you?

Are you aware of the existence of similar studies in your country or region?

How do you think the ideas and issues contained herein can be disseminated more widely in your country or region in order to advance the debate from a human development perspective?

Are you interested in joining our effort, as well as network of scholars, practitioners, and officials to promote the debate and understanding on this subject in Asia?

Please write to us at: [ras01060@un.org.vn](mailto:ras01060@un.org.vn).

Murray Gibbs, Project Coordinator at e-mail: [gibbs@un.org.vn](mailto:gibbs@un.org.vn)

Swarnim Waglé, Research Officer at e-mail: [swagle@un.org.vn](mailto:swagle@un.org.vn)

Pedro Ortega, Junior Professional Officer at e-mail: [pedro.ortega@un.org.vn](mailto:pedro.ortega@un.org.vn)

Nguyen Thanh Giang, Administrative Officer at e-mail: [thanhgiang@undp.org.vn](mailto:thanhgiang@undp.org.vn)

UNDP Asia Trade Initiative

56 Tran Quoc Toan St., Hanoi, Vietnam

Tel: (84 4) 8227946 / 47

Fax: (84 4) 9436942

e-mail: [ras01060@un.org.vn](mailto:ras01060@un.org.vn)