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COUNTRY PROFILE



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INTRODUCTION - 2002 COUNTRY PROFILES SERIES

Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, underscored the important role that States play in the implementation of the Agenda at the national level. It recommended that States consider preparing national reports and communicating the information therein to the Commission on Sustainable Development (CSD) including, activities they undertake to implement Agenda 21, the obstacles and challenges they confront, and other environment and development issues they find relevant.

As a result, in 1993 governments began preparing national reports for submission to the CSD. After two years of following this practice, the CSD decided that a summarized version of national reports submitted thus far would be useful. Subsequently, the CSD Secretariat published the first Country Profiles series in 1997 on the occasion of the five-year review of the Earth Summit (Rio + 5). The series summarized, on a country-by-country basis, all the national reports submitted between 1994 and 1996. Each Profile covered the status of all Agenda 21 chapters.

The purpose of Country Profiles is to:

- Help countries monitor their own progress;
- Share experiences and information with others; and,
- Serve as institutional memory to track and record national actions undertaken to implement Agenda 21.

A second series of Country Profiles is being published on the occasion of the World Summit on Sustainable Development being held in Johannesburg from August 26 to September 4, 2002. Each profile covers all 40 chapters of Agenda 21, as well as those issues that have been separately addressed by the CSD since 1997, including trade, energy, transport, sustainable tourism and industry.

The 2002 Country Profiles series provides the most comprehensive overview to date of the status of implementation of Agenda 21 at the national level. Each Country Profile is based on information updated from that contained in the national reports submitted annually by governments.

Preparing national reports is often a challenging exercise. It can also be a productive and rewarding one in terms of taking stock of what has been achieved and by increasing communication, coordination and cooperation among a range of national agencies, institutions and groups. Hopefully, the information contained in this series of Country Profiles will serve as a useful tool for learning from the experience and knowledge gained by each country in its pursuit of sustainable development.

NOTE TO READERS

The 2002 Country Profiles Series provides information on the implementation of Agenda 21 on a country-by-country and chapter-by-chapter basis (with the exception of chapters 1 and 23, which are preambles). Since Rio 1992, the Commission on Sustainable Development has specifically addressed other topics not included as separate chapters in Agenda 21. These issues of trade, industry, energy, transport and sustainable tourism are, therefore, treated as distinct sections in the Country Profiles. In instances where several Agenda 21 chapters are closely related, for example, chapters 20 to 22 which cover environmentally sound management of hazardous, solid and radioactive wastes, and chapters 24 to 32 which refer to strengthening of major groups, the information appears under a single heading in the Country Profile Series. Lastly, chapters 16 and 34, which deal with environmentally sound management of biotechnology, and transfer of environmentally sound technology, cooperation, capacity-building respectively, are presented together under one heading in those Country Profiles where information is relatively scarce.

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List of Commonly Used Acronyms

ACS	Association of Caribbean States
AMCEN	Africa Ministerial Conference on the Environment
AMU	Arab Maghreb Union
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CARICOM	The Caribbean Community and Common Market
CBD	Convention on Biological Diversity
CIS	Commonwealth of Independent States
CGIAR	Consultative Group on International Agricultural Research
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COMESA	Common Market for Eastern and Southern Africa
CSD	Commission on Sustainable Development of the United Nations
DESA	Department for Economic and Social Affairs
ECA	Economic Commission for Africa
ECCAS	Economic Community for Central African States
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIDA	Foundation for International Development Assistance
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GLOBE	Global Legislators Organisation for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAEA	International Atomic Energy Agency
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
ICT	Information and Communication Technology
ICTSD	International Centre for Trade and Sustainable Development
IEEA	Integrated Environmental and Economic Accounting
IFAD	International Fund for Agricultural Development

IFCS	Intergovernmental Forum on Chemical Safety
IGADD	Intergovernmental Authority on Drought and Development
ILO	International Labour Organisation
IMF	International Monetary Fund
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	Integrated Pest Management
IRPTC	International Register of Potentially Toxic Chemicals
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature and Natural Resources
LA21	Local Agenda 21
LDCs	Least Developed Countries
MARPOL	International Convention for the Prevention of Pollution from Ships
MEAs	Multilateral Environmental Agreements
NEAP	National Environmental Action Plan
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NSDS	National Sustainable Development Strategies
OAS	Organization of American States
OAU	Organization for African Unity
ODA	Official Development Assistance/Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Papers
SACEP	South Asian Cooperative Environment Programme
SADC	Southern African Development Community
SARD	Sustainable Agriculture and Rural Development
SIDS	Small Island Developing States
SPREP	South Pacific Regional Environment Programme
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNCED	United Nations Conference on Environment and Development
UNCCD	United Nations Convention to Combat Desertification
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNFPA	United Nations Population Fund

UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNIFEM	United Nations Development Fund for Women
UNU	United Nations University
WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wildlife Fund
WWW	World Weather Watch (WMO)

CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES

Decision-Making: The Ministry of Environment, Local Government & Rural Development is responsible for policy decisions on various issues concerning the environment. In order to promote environmental protection, the Government of Pakistan established the Federal Ministry of Environment, Local Government and Rural Development and its technical branches such as four Provincial Departments of Environment, and Environment Protection Agencies at federal and provincial levels. The Pakistan Environment Protection Council (PEPC) has been constituted as an apex body under the chairmanship of the Chief Executive/Prime Minister of Pakistan to review and approve vital environmental decisions in the best public interests.

So far the PEPC has been successful in enacting and implementing the Pakistan Environmental Protection Act 1997, National Environment Quality Standards (NEQS), National Environment Action Plan (NEAP) and the formulation of other National Environmental Policies. Pakistan has actively participated in the Stockholm conference of Human Settlement in 1972 and the World Summit on Environment and Development at Rio in 1992. Moreover, Pakistan has signed and ratified a number of multi-lateral environment agreements.

Programmes and Projects: A number of environment development projects are under implementation with the assistance of local and foreign resources. The projects currently implemented for sustainable Development in developing countries with foreign assistance are: Mountain Area Conservancy Project at a total cost of US\$ 10.35 million; Fuel Efficiency in Road Transport Sector at a total cost of US\$ 7.0 million; Protection and Management of Pakistan's Wetland Ecosystem at a total cost of US\$ 0.367 million; Commercialization of Wind Power Potential in Pakistan at a total cost of US\$ 0.4719 million; Conservation of Representative Protected Areas of Sindh and Punjab at a total cost of US\$ 2.28 million; Balochistan Juniper Forest Conservation through Community Participation at a total cost of US\$ 1.6 million; Conservation of Habitat and Species of Global Significance in Aird and Semi-Arid Ecosystems in South West Pakistan at a cost of US\$ 1.06 million; Sustainable Management of Chilgoza Forest Ecosystem of the Sulaiman Mountain Range in Balochistan at a total cost of US\$ 1.8 million.

Status: Pakistan is successfully pursuing International Environment Coordination with various countries, multinational agencies, the United Nations Organization, UNDP, UN-ESCAP, UN Commission on Sustainable Development, United Nations Environment Program, Association of South East Asian Nations, South Asian, Association for Regional Cooperation, South Asian Cooperative Environment Program, Asian Development Bank, the World Bank, World Trade Organization and Non Governmental Organizations working for Environment and Sustainable Development. Pakistan is actively involved in the National preparation for the world Summit on Sustainable Development, scheduled for September, 2002 at Johannesburg, South Africa, for which a national steering committee comprising of multi-stakeholders has been constituted under the chairmanship of the minister for environment.

Capacity-Building, Education, Training and Awareness-Raising: Apart from other education, training and research institutions of public and private sectors, development departments/agencies both at federal and provincial levels, the following training and research institutions of the Ministry of Environment, Local Government and Rural Development are working for education, training and awareness raising of the public sector employees, NGOs and communities in the field of environment, local govt. & rural development such as: Pakistan Forest Institute Peshawar; Aktar Hameed Khan National Centre for Rural Development and Municipal Administration (AHKNCRD&MA), Islamabad ; Pakistan Academy for Rural Development (PARA), Peshawar; Municipal Training and Research Institute (MTRI), Karachi; Local Government Training Institute (LGTI), Lalamusa; Sindh Local Government and Rural Development Academy (SLG&RDA), Tandojam; and Local government, and Rural Development Academy Balochistan (LG&RDA), Quetta.

Information: The Ministry of Environment, Local Government and Rural Development has developed and launched a web site: www.environment.gov.pk for general information regarding environmental issues in Pakistan.

Research and Technologies: Research and Technology are important aspects of development and therefore the ministry of environment is paying adequate attention to the research and technology through various projects. The Pakistan Environmental Protection Agency, Environment Protection agencies in the provinces, Pakistan Forest Institute, Peshawar, Zoological Survey Department, Karachi, Aktar Hameed Khan National Centre for Rural Development and Municipal Administration (AHKNCRD&MA), Islamabad and Municipal Training and Research Institute (MTRI), Karachi are actively involved in various research and technology aspects of environmental issues in Pakistan.

Financing: In order to accelerate sustainable development, both local financing and foreign funding are arranged through the Ministry of Finance and Economic Affairs Division. In addition, bilateral and regional cooperation to finance environmental projects is also undertaken. However, the availability of foreign funding has been a problem in the past.

The current environment portfolio is: Global Environment Facility/UNDP/MP –US\$23.13 million; Government of Pakistan – US\$ 1.14 million; other donors – US\$ 3 million; and, parallel financing – US\$ 12 million.

See also under **Programmes and Projects**.

Cooperation: To meet the challenges of environment and development in Pakistan, the government has decided to support and establish a viable and working new global partnership in the social, economic and environmental dimension at national, regional and global level. Pakistan began paying priority attention to the protection of the environment soon after the Conference on Human Environment in Stockholm in 1972. As Chair of the G77, Pakistan played a leading role at the UN Conference on Environment and Development (UNCED) in Rio in 1992. Pakistan is one of a handful of developing countries to prepare a comprehensive National Conservation Strategy (NCS) in 1992 in cooperation with national and international organization. To achieve the goal of environmental protection, Pakistan has signed/ratified international conventions, protocols and agreements, i.e., the UN Framework convention on Climate Change (UNFCCC), 1994; Convention on Biological Diversity, 1994; Convention to combat Desertification, 1997; and Montreal Protocol on Ozone Depleting Substances.

See also under **Status**.

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CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES - TRADE

Decision-Making: The Ministry of Commerce is responsible for decision making in the commerce and trade sector in Pakistan, however decisions on matters of national interests involving the provincial governments, are taken with the approval of the cabinet of Pakistan.

The trade policy for the FY 2000-01 was geared towards establishing export culture in the country by aligning the interests of government and business community. The main focus of the policy has been to reduce anti-export bias through trade and tariff liberalization and emphasized on attaining export-led higher and sustainable economic growth on the basis of market driven policies. The policy endeavored to make exchange & interest rate instruments supportive for the trade strategy and visualized to achieve greater value addition in the goods and services being exported for enhancing export earnings. The policy frame-work is oriented towards stimulating investment, accelerating economic growth and alleviating poverty.

Programmes and Projects: The main features of the trade policy of Pakistan for the fiscal year 2000-2001 are:

- Export of raw cotton was allowed from the beginning of the season, while excise duty on import of raw cotton was withdrawn;
- Status of indirect exporters is being given to fishing/catching stage operators for import of duty-free machinery and equipments. Furthermore, to promote aqua culture, suitable land next to sea is to be made available and duty free import of shrimp meal and baby shrimp will be allowed;
- Lowest withholding tax rate i.e., 0.75% will apply for fish and fisheries products packed in retail packs of 500 g to 2 Kg;
- Export of fruits and vegetables will be allowed on consignment basis and the wholesale prices reported by Bureau of Supplies will be used as benchmark for valuation purposes;
- The processors of fruits and vegetables will be treated as indirect exporters for duty free import of machinery & equipments and one window facility is being set up at Karachi airport to facilitate export of fruits & vegetables. Further, minimum export price or the requirement of registration with Export Promotion Bureau for the export of fruits and vegetables has been abolished;
- For rice export, greater market penetration in Indonesia, Iran, Iraq, Philippines, Kenya, Zimbabwe and South Africa through active governmental support is being ensured;
- Duty on import of diamonds and rough gemstones is being reduced and the value addition requirement for export of bangles is being reduced to 5%;
- Hardware and software related products meant for software exports were exempted from all duties, taxes and surcharges;
- Software Houses/Software Companies were exempted from corporate income tax on export earnings from software and related services. Likewise, profits and gains of computer training institutions were exempted for a period of five years;
- Export Finance Scheme was extended to Software Houses/Software Companies and these companies were permitted to re-export capital goods without any levies; and
- Shelf life and other labeling requirements for edible products have been simplified while; procedures for import of Ozone Depleting Substances have been made more transparent. Likewise, car (gift and baggage) rules have also been simplified.

Status: Pakistan's external sector has remained under pressure for a variety of reasons during the outgoing fiscal year 2000-01. Firstly, the unprecedented drought situation caused serious damage to agriculture and accordingly reduced the exportable surpluses of major agricultural commodities. Secondly, the international economic environment has also remained inhospitable for developing countries in general and Pakistan in particular. The global economic growth momentum lost its steam in 2001, primarily because of greater-than-expected slowdown in the US economy, stalling recovery in Japan and not-so-compensating growth in Europe and other emerging market economies. In an environment of global slow down the commodity prices are expected to remain weak. Indeed, Pakistan has experienced decline in unit values of its major export items in the range of 4.8% to 25.4% during the

outgoing fiscal year 2000-01. Thirdly, oil prices have remained firm during most of the period of the outgoing fiscal year. Higher oil prices have adversely affected the trade balance. Indeed, Pakistan's oil import bill was, on average, 19% of total import during the last 5 years but it is now increased to 31%. In other words, oil bills account for almost one-third of the country's total import and as such have put tremendous pressure on the balance of payments during the outgoing fiscal year. The external sector performance, when viewed in the background of developments described above, appears to be satisfactory.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: Information regarding trade is available at web site: www.commerce.gov.pk.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: In pursuance of the Uruguay Agreement, the World Trade Organization (WTO) has come into existence.

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CHAPTER 3: COMBATING POVERTY

Decision-Making: The Ministry of Finance is responsible for policy decision making on various issues relating to poverty, however, decisions on highly important the cabinet in consultation with the Finance Division takes national matters. To address the issues of severe macroeconomic instability and place the economy on a path of sustainable development, financial stability, and improved external balances, the Government of Pakistan has initiated a major change in the orientation of economic policy and introduced a comprehensive set of economic stabilization and structural reforms measures in the fiscal year 2000-2001.

Programmes and Projects: The projects and programmes aiming at poverty eradication in Pakistan are as follows: *Poverty Reduction Strategy (PRS) 2001-2004:* The government has articulated a multi-pronged poverty reduction strategy (PRS) to ensure that economic growth is complemented with policies that enhance social development. Pakistan's Poverty Reduction Strategy, as articulated in the Interim-Poverty Reduction Strategy Paper, centers on unleashing growth, improving indicators of social development, and reforming formal institutions of governance. In fact, governance reform is the key element of the strategy as it is a cross cutting theme that is supporting the entire strategy.

Reinvigorating Growth: The key element of poverty reduction is reviving economic growth, for which the government has identified four major areas, namely, agriculture, small and medium enterprises (SMEs), oil and gas sector, and information technology. With relatively lower investment these sectors are likely to generate more growth and more employment opportunities. The SMEs are regarded as the breeding ground for new entrepreneurs and instruments of employment promotion. There are various advantages associated with the SMEs. They are relatively more labour-intensive and therefore, create more jobs; more incomes and hence reduce poverty. They encourage personal savings, contribute to exports, and create new industries. They are also more innovative and flexible. Information technology has the potential of creating jobs for educated unemployed youth. Oil and gas Sectors have the potential for attracting foreign investment, which can play the role of a catalyst in accelerating economic growth. All these activities will help revive economic growth and will reduce poverty in the medium-term. Although growth is critical for poverty reduction, focus on growth alone is not enough. Where poverty is endemic, the high economic growth policy must be accompanied by direct poverty alleviation measures. This is the approach taken by the government. The poverty alleviation programme consists of five major elements which include: integrated small public works programme in both urban and rural areas (Khushal Pakistan Programme); food support programme; revamping of zakat system with a view to using it as an effective means of cash transfer as well as to provide income opportunities to the targeted poor on a sustainable basis; and establishment of a micro credit bank (Khushali Bank) to help improve poor peoples' access to credit.

Khushal Pakistan Programme: This Programme is a social intervention aimed at generating economic activity through public works in the country. The provinces in close collaboration with the local authorities and communities are implementing the programme. The Rs.20 billion (US\$ 330 million) Khushal Pakistan- Poverty Alleviation Programme covering the two year period (January 2000 to December 2001) has been launched with the main goal of increasing employment opportunities and providing essential infrastructure in rural and low income urban areas. This is to be achieved by building farm to market roads, rehabilitating water supply schemes, repairing existing schools, small rural roads, streets, drains, and storm channels in villages. Moreover, the scheme will be directed towards lining watercourses, de-silting canals, and providing civic amenities in towns, municipal committees, and metropolitan corporations.

Food Support Programme: For shielding the most poor and vulnerable from adjustment costs some kind of social safety nets is essential for enhancing the viability of structural reforms. As part of the social safety nets, the government has launched food support programme. Approximately 1.2 million poor households in both urban and rural areas are the beneficiaries of this programme. Cash support of Rs.2000 is provided to them through biannual installments. A system of means testing at the local level has been adopted for identification of beneficiaries by linking the programme with the zakat system where records of Mustahqueen are developed through extensive participation.

Zakat Rehabilitation Grant: The central instrument for social rehabilitation and reducing vulnerability to exogenous shocks is the revamped system of Zakat and Ushr. The recipients of Zakat include both organizations and

individuals, with 50% divided between eligible social, health, educational, and religious institutions and the remainder directed to mustahqeen or beneficiaries identified by the local Zakat committees. The system of collection and disbursement of Zakat, overseen by the respective Zakat Committees, has been recently reorganized to improve its efficacy. The Zakat system, at end-December 2000, benefited 2 million Pakistanis, of which 0.5 million received assistance on a regular basis. Contrary to previous dedicated emphasis on grants and stipends, the revitalized Zakat system seeks to provide funds to Mustahqeen (beneficiaries) not only to fulfill basic needs but also to permanently rehabilitate them, by assisting in the establishment of small-scale commerce or other means of living suitable to their qualifications, skills profile, and local conditions, thereby allowing them to achieve self-reliance. While the institutional framework for implementation, monitoring, and evaluation of this social intervention is being strengthened, relief to the beneficiaries in the form of subsistence grants have been increased from a monthly transfer of Rs. 300 to Rs. 500.

Micro Credit Bank (Khushali Bank): The government has also established the micro credit bank (Khushali Bank) to help improve poor people's access to credit. This bank is providing micro-credit to small and medium enterprises and self-employed micro enterprises. The government is deregulating this sector and micro-credit will be established in the private sector as well.

Social Sector Spending: The prospects for higher economic growth – which is indispensable for reducing poverty – will depend on the ability of the country to unlock the creative energies of the people. This requires investment in human capital, particularly in primary education and basic health. Thus, the fifth element in alleviating poverty is the higher spending on social sector. The affects of sluggish economic growth, during the decade of the nineties, are clearly reflected in Pakistan's poor performance in the social sectors. A weakened social profile is detrimental for growth as social development is essential for attracting investment and generating the capacity for future sustainable growth. In this respect the government has formulated comprehensive, stakeholder driven policies, for improving access to education, health, nutrition, population welfare programme, water supply and sanitation; and for protecting the interests of women, the disabled, and child laborers. See also under **Status**.

Status: Poverty reduction requires effective mechanisms for participation of the poor and the creation of responsive and accountable public institutions. Broad based governance reforms are, therefore, necessary to assure transparent and sustainable management of public resources, and encourage active public scrutiny and accountability in fiscal management. Implementing broad based governance reforms are essential ingredients for the sustainability and effectiveness of the macroeconomic framework. In fact, without governance reforms the enormous task of reviving growth and reducing poverty cannot be addressed. Especially since, sagging growth and rising poverty is a reflection of the failure of governance institutions in Pakistan. Formal institutions of governance have failed to meet the basic needs of the people, especially those suffering from deprivations on account of their income, gender, or geographical location. Poverty redress is only possible when economic, political and social dimensions of governance are addressed by forging a partnership between the government, the private sector, and civil society.

It is in this background that the government has prepared a comprehensive agenda for economic reforms with a view to reinvigorating growth, restoring macro-economic stability, addressing sectoral imbalances, reducing poverty and tackling deep-rooted structural issues. The government's macroeconomic framework is aimed at restoring growth through fiscal adjustment, external adjustment, and debt management. It proposes growth targets that require prudent fiscal management for which revenue, expenditure (their composition), and fiscal deficit targets need to be met. Similarly, it envisions targets for exports, imports, and the current account for ensuring balance of payments stability. These measures will re-invigorate growth and create the fiscal space needed to finance targeted anti-poverty interventions.

One-fourth of GDP originates from agriculture in Pakistan. It employs 44% of country's workforce and contributes substantially to export earnings. Therefore, what happens to agriculture is bound to have a substantial impact on the growth of the overall economy. Agriculture also contributes to growth as a provider of raw materials and as a market for industrial products. Properly conceived policies for the development of the agricultural sector could alleviate poverty through improvements in the productivity of small farmers and by creating employment opportunities for landless peasants. The increased productivity of the agricultural sector could also stem the tide of rural-urban migration, which can help in alleviating urban poverty. To increase agricultural output several measures including better utilization of existing water resources through improved canal irrigation and maintenance; conservation and augmentation of water; promoting water efficient cultivation methods through enhanced availability of equipment and better extension work; corporatization of agriculture; deregulating agricultural

commodities prices; on farm water management; and several initiatives on livestock development and agro-based industries are in active consideration.

The poverty line is derived in Pakistan on the basis of income, which can provide daily intake of 2250 calories per person (2450 calories per adult equivalent in rural areas and 2150 in urban areas). According to the caloric-based poverty (headcount ratio), the incidence of poverty declined sharply from 46.5% in 1969-70 to 17.3% in 1987-88. The rural and urban poverty also declined sharply during the period. However, poverty has increased significantly in the 1990s— rising from 17.3% in 1987-88 to 22.4% in 1992-93 and further to 31% in 1996-97. The recent estimates suggest that poverty has further increased from 32.6% in 1998-99 to 33.50 in 1999-2000. While we may not take these numbers seriously for the reasons outlined above the fact however remains that the incidence of poverty has increased in the 1990s. Similar trends are observed in the case of rural and urban poverty. In fact, the incidence of poverty in rural areas has remained higher than the urban areas since 1966-67.

The main reasons for increase in poverty in Pakistan during 1990's can be attributed to the relatively lower rate of economic growth (implying a slow increase in per capita income), rising unemployment, stagnant/declining real wages, declining flow of workers' remittances, and deterioration of governance. In addition to the factors mentioned above, the high population growth also puts pressure on the meager social services thereby causing social distress. An analysis of poverty by socio-economic groups, focusing on key demographic and economic characteristics, reveals the following stylized facts of poverty in Pakistan: The incidence of poverty increases with household size in urban areas. Households with a large number of children, and single earning member, are more likely to be poor in urban areas than in rural areas. The incidence of poverty among female-headed households is marginally higher in rural areas than that among male-headed households. However, in urban areas, the incidence of poverty in female-headed households is lower compared to that in male-headed households. Significant proportions of the poor are workers with low incomes. In majority of the cases, workers earn a wage that is less than half of the subsistence level. More than one third (36%) of the poor households are headed by aged persons (more than 50 years of age) who are dependent on transfer incomes, such as pensions and other forms of social support. The incidence of poverty is highest (36%) where head of the household has no formal education. Poverty falls as educational attainment of the family head increases. Poverty is (relatively) higher when head of the households are unskilled agricultural workers, engaged in services, transport, production, and sales occupation. Incidence of rural poverty for those households whose heads are agriculturists is lower than all other occupations except for those in professional, management, or clerical positions.

The widespread poverty in the midst of global prosperity is both unsustainable and morally unacceptable. Fighting poverty by a low-income country like Pakistan alone will be a daunting task; but together with strong support of developed countries and international institutions, the battle can be won. Thus, there is a crucial test of developed countries in their support to global poverty reduction. It is well-known that exports and economic growth are strongly correlated. Higher export growth leads to higher economic growth, which is so vital for reducing poverty. Increased access to markets is still the best way to support poor countries in their efforts to reduce poverty and share the world's prosperity. Trade restrictions on the other hand are direct impediments to export growth, hence economic growth and poverty reduction. The major industrial countries have a duty to help those who are trying to help themselves by providing free access to their markets. To be meaningful, free access should cover the products that matter most to the countries fighting poverty.

Capacity-building, Education, Training and Awareness-Raising: Elementary Education is critical to the Education for All efforts of the Government of Pakistan. Universal Primary Education is important for eradication of illiteracy, promotion of equality among members of society, combating poverty and diseases. Universal access to primary education serves as an instrument for development of national identity, and unity, a pre-requisite for effective participation in policies, government and other nation building activities, understanding religious teaching, and for life long and continuing education. Furthermore, primary education has the highest rate of private and social return. Universal primary education is one of the top priority goals, as committed by Pakistan at the national and international levels.

The task has forbidding magnitude and needs massive efforts. Gross participation rate (GPR) at primary level is around 89%. At primary level, dropout rate is 50% (44% for males and 56% for females). Student - teacher ratio is around 52:1. Priority issues in elementary education are access, retention, quality/learning achievements, gender issues and geographical disparities and imbalances. Currently a major concern is reconciliation of statistical baselines in the Education Management Information System (EMIS) and Pakistan Integrated Household Survey

(PIHS). In order to increase the gross participation rate from the existing 89% to 100%, 2.1 million children will be enrolled through the formal system.

The Government of Pakistan has prioritized higher education with increased accessibility of higher education opportunities, improving the quality of higher education and a shift to Science and Technology. Targets are set for increasing access from 2.6% to 5%, increasing private sector participation from 15% to 40% and expanding the ratio of humanities and sciences from 70:30 to 50:50.

Information: Information Technology (IT) is developing as a major industry in the world and promising a great future. It plays a vital role in enabling institutions to overcome their present isolation and shortage of resources. Sustained socio-economic development is not possible by mere capital investment, unless it is reinforced by proper supply of an adequately trained scientific and technical work force. A well-planned education system, including technical and vocational education is, therefore, essential for economic development of a country. The present coverage of Technical-Vocational Education (TVE) facilities is highly inadequate and there is a dire need to broaden the base of T-V-E. In order to implement the concept of integration of skill development with the general stream of education, a scheme for the introduction of Technical stream at secondary school level (IX-X), parallel to science and arts group, has been proposed. To implement this concept, the following is being planned: introduction of Technical stream in existing high schools; and, establishment of Model Technical High Schools.

Keeping in view the financial constraints, it has been proposed to introduce technical stream in approximately 1100 selected Secondary Schools where one trade will be taught initially. Fifty-Six Model Technical High Schools (MTHS) will be established, wherein, training in trades relevant to the needs of the area/gender shall be provided. The model technical high schools would serve as role model resource centers, as well as, in-service teacher training centers for ordinary high schools. Information regarding poverty eradication in Pakistan is available at the web site of the Ministry of Finance (www.finance.gov.pk).

Research and Technologies: No information available.

Financing: The financial resources for both long and short term poverty eradication programme are arranged from different sources. The long term sources like agricultural, commerce and trade are allocated in the annual development programmes for these sectors, however for short term interventions like integration of small public works programme in both urban and rural areas (Khushall Pakistan Programme), food support programme, revamping of zakat system and establishment of a micro credit bank (Khushali Bank), the government of Pakistan has taken special measures to integrate poverty alleviation in the national development programmes.

Cooperation: There is a great deal of cooperation among various sectors of economy towards poverty alleviation in Pakistan. This is due to high priority given by the government to reduce poverty in Pakistan. Therefore, all national, provincial and district governments are committed to cooperate at all levels to eradicate poverty from the society. Moreover, various NGOs and private sector is also involved in the poverty eradication programme in Pakistan

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS

Decision-Making: Various ministries, sub-ordinate departments, autonomous corporations working in the federal ministries are responsible for decision making regarding changing consumption pattern in different sectors. The federal government is responsible for formulation of policy, plans and programmes, which are implemented by federal and provincial agencies in the relevant sectors.

Programmes and Projects: Currently, a major project entitled Fuel Efficiency in Road Transport Sector (FERTS) (1996-2003) is being implemented by ENERCON under GEF and the Government of Pakistan support in the transport sector with a capital cost of US\$7 million. The project aims to reduce at source of emissions of greenhouse gases (GHG) and other pollutants by improving fuel efficiency of road transport vehicles in Pakistan. It will provide benefits at various levels. The vehicle owners will increase business in vehicle maintenance and the country will benefit from reduced fuel imports. The global environmental benefits will be in the form of reduced GHG emissions. Various projects currently under implementation in the energy sector are: Fuel Efficiency in Road Transport Sector Project; Commercialization of Wind Power potential in Pakistan; and, GEF Climate Change proposal.

Status: Over the past thirty years, oil and natural gas have been accounted fuel consumption. The electricity consumption has also shown an even more dramatic rise in recent years. The natural gas is also a primary fuel that starts out with all the convenience that coal can only achieve expensively. The growing dependence on petroleum has not come wholly from the fact that consumers prefer convenience.

The Ministry of Petroleum, Government of Pakistan has recently adopted the policy of commercialization of the Compressed Natural Gas (CNG) in the transport sector, which has very greatly reduced the consumption of gasoline and diesel in the country. This has not only reduced the import bill of oil but also helped in combating air pollution due to reduced emission of lead and sulphur. The Government of Pakistan has issued directive to promote CNG in the transport sector. More than 700 licenses for installation of CNG stations have been issued and so far 165 CNG stations have been established in different parts of the country. These include 162 in private sector and 3 in the public sector. More than 300 stations are under construction in the private sector. Up to March 2001, 150,000 vehicles have been converted on CNG. It is planned to convert 300,000 vehicles to CNG and establishment of another 300 stations by 2003. This will provide job to the skilled and non-skilled workers.

So far, the FERTS project has established 15 Tune-up stations for regular check up and control of the vehicular emission throughout the country. Moreover, almost 400 private entrepreneurs have been trained for establishment computerized tune-up stations in the private sector. In order to ensure continuity of the project on sustainable basis a revolving fund loan have been established with the objective of advancing loans to the private sectors for the establishment of computerized tune-up stations throughout the country. ENERCON has also prepared draft legislation on “Energy Conservation and Management” aimed at conservation of energy in various sectors of economy and establishing a cost-effective energy supply option thereof. A high powered Council to oversee the functions of ENERCON has been revived recently.

Capacity-Building, Education, Training and Awareness-Raising: ENERCON has been conducting data collection and field research. The knowledge, which stems from this experience, has served as the basis for training and public awareness programmes, including publications, seminars, workshops and advertisements in newspapers, radio and television. ENERCON has also developed a Home Energy Conservation Seminar targeted at housewives and working women. To date, more than 12,000 women have benefited from the seminar. ENERCON has trained trainers who respond to requests from the women’s organizations and educational institutions in the four provinces. So far, over 900 auto-mechanics have been trained for computerized tune up of the motor vehicles. About 9 national stakeholders’ workshops and an international symposium on energy and environment conservation have been held for capacity building and awareness. FERTS newsletter is regularly published for the benefit of general public and stakeholders. Publicity campaign is regularly carried out with a primary focus on environment and energy conservation using various electronic and print media.

Information: The Ministry of Environment, Local government and Rural Development is responsible for information disseminations through various activities. Information on changing consumption pattern is available at the web site of the Economic Survey of Pakistan (www.finance.gov.pk).

Research and Technologies: ENERCON is doing research and development activities for introduction of energy saving technology in Pakistan and its extension to the end users. Almost 15 special studies on automobile, policy, energy and environment conservation have been completed. These studies also include research and technology development aspects in the field of energy and environment conservation.

Financing: The energy sector projects undertaken by the ministry and its sub-ordinate departments are funded either through the Government of Pakistan resources allocated in the Annual Development programme or jointly in collaboration with foreign donors.

The FERTS project is funded by the Government of Pakistan and GEF grant as performing detailed: GEF Grant = US\$ 7.0 million; GoP (in kind) = Pak Rs. 10.353 million.

Cooperation: In 1995-1996, ENERCON conducted jointly with the Energy Conservation Centre (ECC) Japan, UNIDO and UNDP a series of 9 Preliminary Energy Audits in Glass, Plastic Forming and Food Processing Industries. ENERCON has developed a Rs. 92 million five-year energy plan for lighting efficiency in commercial buildings on a national scale. This five-year plan was made in collaboration with the joint UNDP/World Bank Energy Sector Management Assistance Program (ESMAP).

The FERTS project is being implemented in consultation and collaboration of all stakeholders at each and every stage of its implementation. A National Steering Committee comprising of inter-ministerial and multi stakeholders representative is monitoring the project activities on regular basis.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS - ENERGY

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for policy and planning in the energy sector. The National Energy Conservation Centre (ENERCON), a sub-ordinate department of the Ministry of Environment, Local Government and Rural Development is working for energy efficiency, promotion of energy conservation for achieving sustainable development of energy resources in Pakistan. ENERCON's efforts spans over all sectors of economy including: Transport; Industry; Agriculture; and Buildings. ENERCON is responsible for implementation of the energy efficiency projects under the over all administrative and policy control of the Ministry of Environment, Local Government and Rural development. ENERCON has also prepared draft legislation on "Energy Conservation and Management" aimed at conservation of energy in various sectors of economy and establishing a cost-effective energy supply option thereof. A high-powered Council to oversee the functions of ENERCON has been revived recently.

Programmes and Projects: ENERCON is presently implementing a US\$ 7 million project on Fuel Efficiency in road Transport Sector. The project aims to reduce at source emissions of greenhouse gases (GHG) and other pollutants by improving fuel efficiency of road transport vehicles in Pakistan. It will provide benefits at various levels. The vehicle owners will increase business in vehicle maintenance. The country will benefit from reduced fuel imports. The global environmental benefits will be in the form of reduced GHG emissions. Various projects currently under implementation in the energy sector are: Fuel Efficiency in Road Transport Sector Project; and, Commercialization of Wind Power potential in Pakistan. See also under **Status**.

Status: Inefficient use currently results from essentially three sources: overload demand of natural gas from both household and industrial consumers, causing a drop in pressure; energy consumption of water pumps; and inefficient lighting, hardware and appliances. Some of the achievements of this project to-date are as under: 15 gasoline and diesel tune-up centers have been established; work in progress for the establishment of further 20 instrumented tune-up equipment during year 2001; computerized/instrumented tune-ups of 18750 vehicles conducted; to date 29 courses completed, wherein 600 auto mechanics and workshop owners, in various cities, have been trained in conduct of computerized diagnosis and introduced to instrumented tune-up business opportunities; mass awareness campaigns carried out and further phases in progress for the promotion of instrumented tune-ups and related matters; work for creation of US\$3.0 million ENERCON TRUST is in progress and establishment of trust expected in later half of year 2001; and, work is in progress and is at different stages for conduct of more than 16 special studies for sustaining fuel efficiency in the road transport sector.

Capacity-Building, Education, Training and Awareness-Raising: ENERCON has been conducting data collection and field research. The knowledge, which stems from this experience has served as the basis for training and public awareness programmes, including publications, seminars, workshops and advertisements in newspapers, radio and television. ENERCON has also conducted a Home Energy Conservation Seminar targeted at housewives and working women. To date, more than 12,000 women have benefited from the seminar. ENERCON has trained trainers who respond to requests from the women's organizations and educational institutions in the four provinces.

Information: The Ministry of Environment, Local Government and Rural Development is responsible for information disseminations through various activities. Information is available at the web site of the Ministry of Environment, LG&RD (www.environment.net.pk).

Research and Technologies: ENERCON is doing research and development activities for introduction of energy saving technology in Pakistan and its extension to the end users.

Financing: The energy sector projects under taken by the ministry and its sub-ordinate departments are funded either through the Government of Pakistan resources allocated in the Annual Development programme or jointly in collaboration with foreign donors.

Cooperation: In 1995-1996, ENERCON conducted jointly with the Energy Conservation Centre (ECC) Japan, UNIDO and UNDP a series of 9 Preliminary Energy Audits in Glass, Plastic Forming and Food Processing Industries. ENERCON has developed a Rs. 92 million five-year energy plan for lighting efficiency in commercial buildings on a national scale. This five-year plan was made in collaboration with the joint UNDP/World Bank Energy Sector Management Assistance Program (ESMAP).

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS - TRANSPORT

Decision-Making: The Federal Ministry of Communication, the Government of Pakistan is responsible for the overall policy and planning in the transport and communication sectors in Pakistan. However, Ministry of Environment, Local Government and Rural Development is taking case of policy and planning in controlling the vehicular emission and environment pollution in the transport sector. Energy Conservation Center (ENERCON) is an attached department of the Ministry of Environment, Local Government and Rural Development with the responsibility of monitoring the fuel efficiency in road transport sector.

Programmes and Projects: Currently, a major project entitled Fuel Efficiency in Road Transport Sector (FERTS) (1996-2003) is being implemented by ENERCON under GEF and Government of Pakistan support in the transport sector.

Status: So far, the project has established 15 Tune-up stations for regular check up and control of the vehicular emission throughout the country. Moreover, almost 400 private and entrepreneurs have been trained for establishment computerized tune-up stations in the private sector. In order to ensure continuity of the project on sustainable basis a revolving fund loan have been established with the objective of advancing loans to the private sectors for the establishment of computerized tune-up stations throughout the country.

Capacity-Building, Education, Training and Awareness-Raising: So far, over 900 auto-mechanics have been trained for computerized tune up of the motor vehicles. About 9 national stakeholders' workshops and an international symposium on energy and environment conservation have been held for capacity building and awareness. FERTS newsletter is regularly published for the benefit of general public and stakeholders. Publicity campaign is regularly carried out with a primary focus on environment and energy conservation using various electronic and print media.

Information: Information regarding activities of the FERTS project is available at website 'www.ferts.8k.com'.

Research and Technologies: Almost 15 special studies on automobile, policy, energy and environment conservation have been completed. These studies also include research and technology development aspects in the field of energy and environment conservation.

Financing: The project is funded by the Government of Pakistan and GEF grant as performing detailed as follows: GEF Grant = US\$ 7.0 million; GoP (in kind) = Pak Rs. 10.353 million

Cooperation: The project is being implemented in consultation and collaboration of all stakeholders at each and every stage of its implementation. A National Steering Committee comprising of inter-ministerial and multi stakeholders representative is monitoring the project activities on regular basis.

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CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

Decision-Making: The Ministry of Population Welfare is most directly concerned with demographic issues. The other relevant ministries are the Health, Women Development and Statistics Division is responsible for maintaining national population data base. Population Census Organization working in the Statistics Division is responsible for national census and maintenance of population statistics. The National Population Policy also covers environmental linkages for effective planning and management of human environment. The national, regional and local population statistics are frequently used for policy planning in various sectors of national development and there is an active coordination between various institutions in this regards.

Programmes and Projects: One of the 14 core programmes of the National Conservation Strategy (NCS) of Pakistan is integrating population and environment. Therefore, an important operational principle of the NCS is to reduce the rate of population growth as quickly as possible, while simultaneously improving the quality of the human resource base. Many facts are being used in the approach to solve the problem, including education, health, family planning, reproductive health and programmes for women etc. The population policy and programmes in Pakistan are:

Population Policy: The population policy sets out a broad framework for achieving the ultimate aim of reducing poverty and raising the quality of life of the citizens. Efforts of all the stakeholders would be instrumental in carrying forward the objective of the Population Policy by creating conditions for achieving replacement fertility levels followed by population stabilization, raising life expectancy at birth for both men and women, reducing infant and child mortality as well as maternal mortality, ensuring empowerment of women in decision-making, and providing reproductive health and family planning services to all citizens of Pakistan.

Population Welfare Programme (PWP): Population Welfare programme is an on-going national endeavor, which is providing information and services to the target population to encourage voluntary adoption of birth spacing. It is being pursued within the reproductive health framework in order to broaden the scope of activities and provide appropriate options for family planning. The programme is an important component of social action programme (SAP), as containing population growth is a very important variable affecting socio-economic development in the country. The thrust of the programme is to reinforce its activities and speed-up implementation of reproductive health packages, address unmet need for family planning services, and improve the quality of services. This is being addressed by decentralizing the implementation of programme, up-scaling skills through professional training, and integrating community based workers of both Ministry of Population Welfare and Ministry of Health. Major activities pursued during the year covered the following areas: service delivery infrastructure; social marketing and civil society; advocacy, education, and communication; capacity building/improvement; research; and monitoring and evaluation.

Service delivery infrastructure: The service delivery infrastructure comprises of programme outlets and service units of provincial line departments, target group institutions, and private sector or civil society initiatives. The entire network consists of 1,688 family welfare centers (FWCs), 106 Reproductive Health Services (RHS) Centers, 131 Mobile Service Units (MSUs), 500 outlets of Target Group Institutions (TGIs), 6080 outlets of Provincial Line Departments (PLDs), 23,000 Registered Medical Practitioners (RMPs), 13,400 Hakeems, and 7,350 Homeopaths. Besides, door to door services and motivation and counseling is provided through 13,000 male and female Village Based Family Planning Workers (VBFPWs). The service outlets provide reliable and quality services for reproductive health and family planning issues, raising awareness on the health of mother and child, necessity of pre and post natal care, provision of treatment for minor ailments, and referrals to hospitals for specialized treatment and emergency obstetric care.

Social Marketing and Civil Society (SMC): Social Marketing activities are complementing the efforts of population welfare programmes in providing conventional contraceptives on subsidized rates to families in low and middle-income groups through its 60,000 outlets. The SMC programme is executed under two independent logos of “Green Star” and “Key” with foreign grant assistance provided to them directly. A situation analysis was undertaken during 2000-2001, which revealed that social marketing activities have contributed to developing human capital, raising contraceptive prevalence rate, and encouraging users to pay for such services.

Monitoring and Evaluation: Monitoring of programme activities is a regular process and is undertaken primarily via field monitoring. Officers from the Ministry of Population Welfare have further intensified this process through surprise visits to service delivery outlets.

Status Pakistan has one of the highest population growth rate (2.1% per year) among developing countries. Pakistan is already the 7th most populous country in the world. The population of Pakistan has reached 142.5 million people in 2001, which is almost 2.3% of the world population. The total fertility rate is about 4.8 children per woman. Approximately 60% of infant deaths are due to infectious and parasitic disease, most of which can be linked to contaminated water. However, the number of crude death rates has been declining, and life expectancy has risen in the last few decades. In recent years, infant and children mortality have also shown declining tendency. If this rate continues, Pakistan's population would reach 222 million by the year 2020. Such a high growth rate coupled with the country's weak socio-economic profile would render all efforts towards development futile. It would also contribute significantly to raising the proportion of the population below the poverty line. Although Family Planning Programs have been pursued in the country but frequent changes in strategies and inconsistent political support have acted as a hindrance in their successful implementation.

The growing population is also adding to the number of illiterates in the country, which have more than doubled from 22 million in 1961 to 54 million in 2001. The numbers of unemployed have increased six folds from 0.4 million in 1970-71 to the current level of more than 2.42 million. Thus, creating the need for increasing jobs by 69% only maintains the unemployment rate at its existing level. Although, Pakistan's GNP has increased from US\$ 2.6 billion in 1950 to US\$ 61.8 billion in 2000, yet per capita incomes have not increased substantially with the result that 44 million people are living below the poverty line. In fact, per capita GNP is likely to fall if the present population growth rate is not controlled. Given the present population growth rate, the national income would have to rise by US\$ 40.0 billion by the year 2020 just to maintain the present level of per capita incomes.

Afghan Refugees: The influx of Afghan Refugees into Pakistan started in 1979 and peaked at 3.7 million in June, 1990. Data for Afghan Refugees reveals that Pakistan is still hosting around 2.2 million Afghan Refugees during January, 2001. For more than 22 years, Pakistan has generously hosted refugees affected by the civil war in Afghanistan. Apart from exerting pressure on the tight labor market in Pakistan, Afghan refugees have inflicted considerable economic loss and ecological damage in the country (Economic Survey of Pakistan, 2000-2001).

Capacity-Building, Education, Training and Awareness-Raising: There are 10 Regional Training Institutes (RTIs) under the Ministry of Population Welfare for imparting technical training to paramedics and doctors. Besides, there are two population Welfare Training Institutes (PWTIS) for training to the Program Managers and professionals on managerial aspects. For Advocacy and Information Education and Communication (IEC) all media and channels are being engaged in addition to Inter personal Communication (IPC) through more than 50,000 Community Based Workers (CBWs). Initiatives like setting of National Population Commission and involving elected leadership at all levels are also under consideration.

Capacity building activities covered clinical training at various levels. These include 18 months basic training of 700 Family Welfare Workers and Councilors, 3-month training of 80 Field Officers, Short- training of 425 Medical Personnel of provincial line departments and target group institutions and advanced on-the-job training of 877 Paramedics of the programme and 70 Paramedics from NGOs. In addition, 310 faculty members of Training Institutes will also be trained by June, 2001. Similarly, non-clinical training activities will cover 1615 programme personnel, 5394 employees of other National Building Departments, 3601 personnel of organized sector, and 3772 community based Groups during the year. This training is mandatory for the management and grass-root work force of the programme so that they can update their knowledge and skills, and improve their performance.

The programme has an almost universal level of awareness i.e. about 97% but the use rate is only 32%. There is a wide gap between knowledge and practice (KAP) in spite of the fact that there is an unmet need of 38%. In order to address this gap, emphasis has been on advocacy, information dissemination, and interpersonal communication initiatives. The main advocacy event undertaken during the year was National Population Convention, which was addressed by the Chief Executive of Pakistan and attended by policy makers, intellectuals, scholars, programme managers, journalists, and representative from donor community, social and private sector and the civil society.

Information: The Ministry of Population Welfare has set-up Pakistan Population Information Centre (PPIC) that disseminates population related information throughout the country. A promotional campaign has also been

revitalized and enriched by eliciting expertise of the private sectors. It was reviewed and improved through experience-sharing session with the provinces, private sector, civil society and media experts. The campaign now focuses on projecting service outlets, encouraging target population to visit service centers, and using them according to their requirements.

The awareness level of at least one method of family planning is around 97% and contraceptive use/prevalence rate is 32% with total fertility rate estimated at 4.8 and population growth rate 2.2%. A National Reproductive Health Survey (NRHS) has been completed and the results are being analyzed. It will bring out latest information on programme achievements in terms of contraceptive use, fertility rate, and population growth rate. The information of NRHS will provide a comparative situation with the last survey and the inter census results. Information regarding demography in Pakistan can also be seen on line on the web site (www.finance.gov.pk).

Research and Technologies: The following two Research Institutes working under the Ministry of Population Welfare on various aspects of research and technology in Pakistan: National Institute of Population Studies (NIPS), based at Islamabad, conducts action-oriented research and evaluative studies on population and development and different components of the population welfare programme; and, National Research Institute of Fertility Control (NRIFC) based at Karachi, undertakes clinical studies on reproductive health and gender concerns and other service delivery related research.

Financing: The total budget of the Ministry of Population Welfare for the year 2001-2002 (July 2001 to June 2002) was Rs.1.74 billion. This comprises 25% of federal component and 75% provincial component to support various projects.

Cooperation: Reproductive health including Family Planning is a cross-cutting issue for which multi-sect oral approach has been adopted. At the moment, besides Ministry of Population Welfare, Ministry of health, Ministry of Women Development, Ministry of Education, Population Census Organization, Ministry of Labor, Manpower and Overseas Pakistanis and Ministry of Environment, Local Government and Rural Development are involved in the population, family planning and reproductive health issues. Economic Affairs Division and Planning Commission coordinate their activities. In addition, a strong partnership between the public and private sector has also been developed for social marketing of contraceptives. Target Group Institutions (TGIs) and the Corporate Sector like All Pakistan Textile Mills Association (APTMA), All Pakistan Cement Mills Association (APCMA) and Pakistan Sugar Mills Association (PSMA) are also being involved. At the Regional level, Pakistan has attained membership of Partners in Population & Development. The other regional for a like ECO & SAARC are also exploited for seeking cooperation for Population Planning/Reproductive Health Activities. At international level WHO, Family Planning Association and other United Nations agencies working on demographic issues are regularly coordinated.

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CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

Decision-Making: The Ministry of Health is responsible for over all national health policy and programs and is assisted both by the federal and provincial Health Departments and Institutions for implementation of the national health policy and programmes. Health, being a provincial subject is directly under the administrative control of the provincial health department in all the four provinces, however in the federal and northern area the federal health institutions control it.

Programmes and Projects: Some vertical health programmes under implementation are: National Programme for Family Planning and Primary Health Care, Expanded Programme of Immunization (EPI), National AIDS Control Programme, Malaria Control Programmes, Tuberculosis Control Programme, Women Health Project and National Hepatitis-B Control Programme. These are discussed in detail below:

National Programme for Family Planning and Primary Health Care: The programme aims to deliver basic health services at the door step of the under-privileged segment of the society through deployment of lady health workers living in their own localities. The programme is currently being implemented in almost all districts of the country with a field force of about 45,000 Lady Health Workers (LHWs). The government intends to expand the number up to 58,000 by 2001. These workers are providing services to their communities in the field of reproductive health, child health, immunization, nutrition, family planning and treatment of minor ailments. There are over 9100 trained health facility staff and 1300 supervisors who are involved in training and supervision of the LHWs. Selection and training of another batch of 433 supervisors is under way. The programme has made significant contribution in reducing the population growth rate as well as the infant and maternal mortality rates. An amount of Rs.1400 million has been allocated for the implementation of the programme for the financial year 2000-01.

Extended Programme of Immunization (EPI): The above programme was approved at a total cost of Rs.5,335.3 million for the period, 1999-2004. The programme aims at reducing mortality rates of six preventable diseases namely, diphtheria, pertussis, tetanus, polio, measles and tuberculosis. The programme has progressed satisfactorily with immunization coverage of one million children annually. Immunization coverage was raised to 70% during the year 2000. Routine immunization coverage has been expanded through fixed centers, outreach teams and lady health workers. Special immunization days and campaigns are also conducted. During the year 2000-01, eight million children have been immunized from six killer diseases. Major objectives of the EPI are: To increase the overall coverage to 90% by 2004, against six vaccine preventable diseases; Eradication of Polio by the year 2001-02; Reduction of Neo-natal Tetanus by the year 2002; and Provision of Vitamin A & Micro-nutrients.

National AIDS Control Programme: National AIDS Control Programme has been approved at total cost of Rs.774 million for the period, 1994-03. An allocation of Rs.92 million has been approved for the current fiscal year, 2000-01. Though HIV/AIDS has not reached epidemic proportions in Pakistan, it is still regarded as a high-risk country for the virus. The total number of HIV cases reported as of 31st December, 2000 was 1,549 while there were 202 AIDS cases. The high-risk groups include blood recipients, injecting drug users, commercial sex workers, patients with STDs, drivers, migrants, immigrants, and the youth. However, to stop the spread of the disease, about 2.5 million tests have been carried out so far. During 2000-01, forty-five Surveillance Centers were established, 9000 tests were performed and 120,000 to 160,000 blood bags were screened for VIH/HBV, 594 kits were distributed to provinces and federal centres for surveillance and an intensive public health education campaign was launched and education material (33,000 booklets, 14,680 posters and 14,700 leaflets) was distributed.

Malaria Control Programme: Malaria still remains a major public health problem in the country. To reduce malaria mortality, a Malaria Control Programme (1993-98) with an estimated cost of Rs.839.11 million was initiated. Later it was extended to 1999-2000 and further up to June 2001. An amount of Rs.40.00 million has been allocated for the year 2000-01. Main activities undertaken during the current year include selective spraying in highly malarial areas of the rural areas of the country and treatment of all confirmed cases with suitable anti malaria drugs. Epidemiological data available for the year 2000 signify an overall Annual Parasite Incidence (API) in the country at 0.780 cases per 1000 population for the year under review. Province-wise percentage of Annual Parasite Incidence is highest in Balochistan (API = 5.698), followed by NWFP (API=1.243), Sindh (API=0.744) and Punjab (API=0.186).

Tuberculosis Control Programme: The programme has been approved at a cost of Rs.66.7 million for 2000-01 to 2003-04. The main objective of the programme is to develop a national policy guideline for the control of tuberculosis. The TB Control Program aims at reducing TB cases by providing technical assistance, training, monitoring/surveillance, development of health education material and applied research in TB and MDR prevalence.

Women Health Project: The project was launched through-out the country in July, 2000 at a total outlay of Rs.3,750 million, with assistance of the Asian Development Bank. The project aims at improving the health, nutrition and social status of women and girls by developing women – friendly health systems in 20 districts of Pakistan. Its specific objectives are to expand basic women’s health interventions to the underserved population and strengthen the capacity of institutional and human resources to improve women’s health in the long term.

National Hepatitis-B Control Programme: Hepatitis-B vaccine is being introduced in the EPI regime with effect from July 2001 with grant assistance from Global Alliance for Vaccines and Immunization. Pakistan is the first country in the EMRO selected for such assistance.

Cancer Programme: In the health sector, Pakistan Atomic Energy Commission (PAEC) has been providing specialized health services in the field of Nuclear Medicine, Radiotherapy, Oncology and Radioimmunoassay. So far the PAEC has set up 12 medical centres in various parts of the country while another one is under construction. Three hundred beds are available at six PAEC cancer hospitals. These Nuclear Medical Centres are well equipped with modern diagnostic and treatment facilities and highly trained manpower. They cater to approximately 300,000 patients per year, which include nearly 30% new patients.

Genetic Disease Screening: The Pakistan Atomic Energy Commission has developed biotechnological approach in the health sector at National Institute of Biotechnology and Genetic Engineering (NIBGE) for early diagnosis of diseases such as tuberculosis, hepatitis-C and B-thalassemia. This service is available at NIBGE, Faisalabad, INMOL, Lahore and KIRAN, Karachi.

Drug Abuse: A Five Year Drug Abuse Master Plan is under implementation. Under this Plan, projects/schemes are being extended that aim at poppy substitution in the poppy growing areas of NWFP. For demand reduction, an interdiction and demand reduction mass awareness programme has been launched through the use of radio, newspapers, sports tournaments, brochures and pamphlets to inform and alert the general public of the necessity for community awareness and action. A Community Participation Project for drug demand reduction has also been initiated to help NGOs working in the field to cover drug-abusing population in the rural and urban areas. A “Rapid Situation Assessment” survey on drug abuse has been completed with the assistance of UN Drug Control Programme (UNDCP). The results of the survey are presently being compiled. Strict ban on poppy cultivation has been maintained during the year and the international community has declared Pakistan a poppy free country. The jurisdiction of Anti Narcotics Force (ANF) has been extended to the tribal areas, AJK and Northern Areas to deal effectively with the menace of drug abuse and drug trafficking. Implementation of a three year project for strengthening the Drug Law Enforcement Agencies with a grant of US\$ 5.25 million by the UNDCP will go a long way to curb narcotics and money laundering. Assets of six drug traffickers amounting to Rs.548.4 million were frozen up to December, 2000.

Status: Pakistan has an extensive health delivery system, which is a mix of government and private facilities distributed all over the country. The existing national network of medical services consists of 91,823 doctors, 4,175 dentists, 37,623 nurses, 22,528 paramedics, 5,619 lady health workers and 93,907 hospital beds. 5,171 Basic Health Units, 531 Rural Health Centres, 856 Maternity & Child Health (MCH) Centres and 4,635 dispensaries offer primary health care facilities. The big hospitals mainly located in the urban areas of the country are 876. The population ratio coverage by one doctor works out to 1,529 persons, per dentist 33,629 persons, per nurse 3,732 persons and per hospital bed 1,495 persons.

Health is one of the basic essentials for normal existence. In Pakistan, though the health sector, both in qualitative and quantitative terms has expanded, yet the existing health system is not competent enough to provide adequate services for the growing population. Such a sorry state of affairs can be attributed to some key issues, associated with the health sector from the very beginning. Paucity of funds, limited access to health services and their inadequacy, extreme poverty, ignorance and lack of awareness among the masses, and deficient health infrastructure have been identified as fundamental problems in the way of improving public health. These problems still stand and militate against the efforts of the government to make the health sector efficient.

The disease pattern is characterized by a high proportion of death rates – infant mortality rate of 90 per thousand live births and mortality rate under 5 of 126 per 1000 due to infections, communicable diseases, and malnutrition and generalized under nutrition. Similarly, drug abuse has emerged as a public health problem while malaria and tuberculosis continue to be potential threats. There has been a substantial increase in the number of drug addicts in Pakistan over the past years, from 1.9 million in 1986 to an estimated 4.0 million by the year 2000. Out of these, more than 50% are heroin addicts. The social factors that have led to this explosion continue to exist. Given the present socio-economic conditions in the country, there is reason to believe that drug abuse will continue to increase until such time an effective need based drug demand reduction strategy is implemented. In view of the sharply upward trend in prevalence of drug abuse, it is considered a matter of high priority to educate the nation on the adverse effects of drug abuse.

Capacity-Building, Education, Training and Awareness-Raising: A number of capacity building programmes are being implemented by the federal Health Division, provincial Health Departments and other institutions working in public and private sector for human health. They include professional, technical and informal health related training and practice in various disciplines of human health care. Human Health education in Pakistan is very common and has also been opened to private sector. The country is producing adequate doctors and nurses not only for domestic but also overseas needs.

A public awareness and education campaign has been undertaken to inform the public about water pollution, smoking, AIDS, epidemic diseases and other health hazards. The campaign is multi-media in nature and approaches the issues in simple and easy to understand terms and language, establishing a direct link between human health, environment and diseases. Another major ongoing activity is the public awareness campaign for vehicular pollution. Special emphasis has been placed on the health hazards associated with vehicular pollutants. The campaign will also address the remedial measures and laws related to rising environmental and health problems. In addition, the continuous campaign for tree planting has direct and indirect implications for health improvement. This has been an ongoing activity for many years.

Information: Human health related information is disseminated to the general public through press and electronic media. Moreover, national, regional and local seminars, workshops and walks are organized to create awareness among public about various health issues. Information regarding health sector in Pakistan is available at official web site (www.finance.gov.pk).

Research and Technologies: Research on Human health is a regular phenomenon undertaken by various academic and professional institutions in Pakistan. As an outcome of research activities various technologies are developed in the country to overcome health related problems. Moreover, state of the art technologies in health sector are also transferred from developed countries for replication in Pakistan.

Financing: The budgetary allocations for the health sector have been gradually increased to improve the quality of life. The total outlay set aside for health improvement programme during 2000-01 was Rs.24.3 billion (Rs.6.0 billion for development and Rs.18.3 billion for recurring expenditures). This is 9.9% more as compared to the previous year and works out as 0.7% of the GNP.

See also under **Programmes and Projects**.

Cooperation: The Federal Ministry of Health and the provincial Health Departments are directly coordinating and implementing various projects and programme at national level. At international level the Federal Ministry of Health is responsible for cooperation for bi-lateral and multi-lateral cooperation with various governments and agencies working in the health sector throughout the world. Cooperation with WHO and UNICEF is very important at global level.

CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for sustainable human settlement development. However, the Ministry of Housing and Works is responsible for the engineering aspects of human settlements.

Programmes and Projects: The integrated human settlement projects being implemented by Pakistan include:

The Orangi Pilot Project (OPP) in Karachi: The programme is an unplanned settlement, which has grown rapidly from 1965 till 1994. At last count there were 800,000 people involved in the project. There are 7,256 lanes in Orangi containing 104,917 houses. The people have invested Rs. 80.664 million (US\$ 1.50 million) in this effort. The programme provides services through a number of projects, like low-cost sanitation and housing, as well as assistance for segregated and illiterate or semiliterate low-income women, small family enterprises and entrepreneurs dealing with woodlots and orchards.

The Khuda Ki Basti in Hyderabad: The objective of the programme is to provide shelter, land and a range of services to low-income groups.

The Faisalabad Area Upgrading Project (FAUP): A Community Led-Government Enabled-Donor Assisted Initiative. Being implemented with the financial and technical assistance of DFID (UK), the Faisalabad Area Upgrading Project (FAUP), aims at improving the economic and social development of 240,000 people living in slums and katchi abadis, (regularized squatter settlements) of Faisalabad.

The NWFP Community Infrastructure Project (CIP): A province-wide, demand driven, participatory Programme. An overall 39% financial progress has been achieved as of March 2001. The fifth project is the Sariab Sanitation Project – an NGO enabled community initiative. Uptill now all 500 latrines have been built with a 100% cost recovery. People of Sariab are proud of having solved their sanitation problems without any financial support from the government or donors.

Mera Ghar (my house) Project: This Project was initiated in August 1999, which aims at constructing 500,000 housing units at an estimated cost of 8 billion dollars. 300 sites with a total area of 8,000 hectares of state owned land had been identified and the development work initiated on 120 of these sites. The land was acquired free of cost and the cost of construction was to be financed through borrowing from commercial banks. Applicants would be given a house or an apartment of their choice on a first come, first served basis, against a part of the cost as down payment, the rest being payable in installments. The Project was poised to move with extra ordinary pace, by-passing lengthy administrative procedures through the Prime Minister's directives. However, following apprehensions about the financial feasibility of the Project, it has been critically reviewed by the present government, and trimmed down in size, and made to move under normal procedures.

Status: In 1995, the population of Pakistan was 128.1 million people, of whom 31% live in the cities, a figure which is expected to rise to 50% by the year 2020. Currently, about 300,000 housing units are being produced annually in Pakistan. However, traditionally, the construction of the house itself is left to the individual households and development of sites and services remains the main activity area of the public and private sectors in Pakistan. Although, the demand for developed plots remained low, due to a decline in foreign remittances, the activity continued throughout Pakistan and in Punjab alone over 40 sites and services schemes were developed during 1996-2001 period. One fourth of these schemes were produced by the private sector. Envisioned to be developed through a public-private joint venture, the Regi Lalma Township at Peshawar has offered about 27,000 residential plots of varying sizes. Another large sites and services scheme, called Jubilee Town, with some 7,000 residential plots has been developed at Lahore.

Capacity-Building, Education, Training and Awareness-Raising: Led by the implementation of the devolution plan and the local government plan, the next three years will be devoted to major interventions in capacity building and institutional strengthening. External Support Agencies and intermediaries of external finance will be moving cautiously with major loan disbursements, concentrating instead on grant based technical assistance for capacity building and institutional strengthening. The World Bank supported Punjab Municipal Development Fund Company, (PMDFC), presents a good example.

The Local Government Plan-2000, which is currently in the process of its phased implementation, provides a framework for spatially integrated development of human settlements. Accordingly, it is proposed to establish an enabling and monitoring system in the form of a network of *Human Settlements Observatories* at national, provincial and district levels. These *Observatories* will not only maintain an up to date records according to the Habitat indicators, but will also extend advice to their respective tier of the government on a planned improvement of these indicators.

Information: Ministry of Environment, Local Government and Rural Development is responsible for information dissemination using print and electronic media. Moreover, online information on sustainable human settlement is also available on web site (www.environment.net.pk).

Research and Technologies: The furthering of Habitat Agenda in Pakistan is envisioned to be accomplished by allocation of significant resources toward eradication of poverty, accelerating the grant of legal tenure status to *katchi-Abadi* dwellers, adopting a time-bound action plan for environmental conservation, assigning high priority to wastewater treatment and a safe disposal of solid waste. However, the most significant steps being taken in this direction include the formulation of a peoples centered Local Government Plan and initiation of its implementation. The fact that this is being done within the overall framework of devolution of power to local level makes it all the more significant.

Two of the Pakistani Best Practices, i.e., Orangi Pilot Project, (OPP), and Faisalabad Area Upgrading Project, (FAUP), are already being studied, with a view to replication, by government functionaries and NGOs from a number of countries. Some of them have already adopted the “internal/external” model of OPP. Owing to its new role in the revived *katchi-abadis* regularization program, the Aga Khan Award winning best practice, ‘Khuda-ki-Basti’ is likely to rise to international prominence in the near future. With the newly strengthened partnerships that these and other such practices have with the counterpart government Ministries and departments, and the framework of national and international cooperation now available in the Local Government Plan-2000, Pakistan is likely to place a high priority to reciprocal international cooperation in the years to come. With the network of the proposed *Observatories* in place, Pakistan will be able to readily share its experiences with the World community.

Financing: The Orangi Pilot Project (OPP) implemented a user-fee approach to a wide extent, which resulted in generating Rs. 57.2 million in 1993 which were used by the local population for sanitation, while the OPP used Rs. 3.8 million for research that year. The occupants also financed the Khuda Ki Basti project. In order to be part of the project, a membership fee of Rs. 1000 was required, along with a monthly fees of 50 to 100 rupees paid to finance the development of infrastructure.

Cooperation: During 1996-2001, Pakistan continued to receive financial and technical assistance from a number of multilateral and bilateral External Support Agencies, (ESAs). With the exception of Shelter where Pakistan received little international assistance, all other Habitat areas in Pakistan remained highly supported. Sustainable Urban Development, Capacity Building of urban service providers, and Social Development and Poverty Eradication received overwhelming assistance. On the other hand, several of the ‘Best Practices’ have covered a lot of ground in Pakistan during the last five years. This has led them to communicate more intensively within and outside the Country.

During the last five years, the Orangi Pilot Project, (OPP), extended training to groups from a number of countries, including South Africa, Zimbabwe, Central Asia, Bangladesh, Nepal and Sri Lanka. Lately groups from India have visited and requested support in the expansion of their sanitation programs. Groups from South Asia and Asia Pacific sponsored by Asian coalition for housing rights are regular visitors. Besides, a number of foreign NGOs, including those from South Africa, Sri Lanka, Nepal, Bangladesh, Zimbabwe and some Central Asian republics are learning from OPP experiences.

Similarly FAUP received a number of study groups from the World Bank, Asian Development Bank, JICA, WHO, DFID, CIDA, and UNDP, besides several international NGOs, including: ACTION AID Bangladesh, WATER AID UK and WATER AID NEPAL, UNICEF and Save the Children Fund (UK).

CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for policy and planning of environmental issues in Pakistan. The Pakistan Environmental Protection Council headed by the Chief Executive of Pakistan is the highest inter-ministerial and multi-stakeholders decision making body. The first meeting of the Pakistan Environmental Protection Council was held in May 1993 and the National Environmental Quality Standards (NEQS), inter alia, for industry were established. The NEQS now exist for industrial and municipal effluents, and for motor exhaust and noise. Thereafter, a new environmental law was agreed with the industry, 'NEQS were rationalized; modalities of enforcement of NEQS were worked out through consensus. Another major initiative was the World Bank funded Environmental Protection and Resource conservation Project (EPRCP) with the major aim to upgrade and strengthen Pakistan's environmental Protection institutions. A comprehensive legislation was evolved over-time to prepare and implement national environmental policies. It is entitled as the Pakistan Environmental Protection Act, 1997 (PEPA 1997). The PEPA 1997, repealing the PEPO 1983, was enacted. The PEPA 1997 provides the framework for implementation of National Conservation Strategy, establishment of Provincial Sustainable Development Funds, protection and conservation of species, wildlife, habitats and biodiversity, conservation of renewable resources, establishment of standards for the quality of the ambient air, water and land, establishment of Environmental Tribunals and appointment of Environmental Magistrates, Initial Environmental Examinations (IEE) and Environmental Impact Assessments (EIA), and promotion of public education and awareness of environmental issues through mass media. The revised National Environmental Quality Standards were notified in the year 2000. These standards were revised to make them more industry specific. The revised standards stipulate the maximum allowable concentrations of municipal and industrial effluents into inland waters, sewage treatment and into sea. Pakistan Environmental Protection Council (PEPC) in its meeting held on February 3, 2001 under the chairmanship of the Chief Executive of Pakistan approved the National Environmental Action Plan (NEAP) which identifies Clean air, Clean water, Management of solid wastes and Ecosystem management as four core areas for development and implementation in the country. The primary objective of NEAP is to identify pressing environmental issues especially related to the four major core areas, in the country, and to propose the type of programmatic remedial actions that can be taken. The second, and important, objective is to plan and take remedial actions to off set environmental issues on sustainable basis. As per the requirements of Pakistan Environmental Protection Act, 1997, every proponent of a new development project has to submit an Initial Environmental Examination report or where the project is likely to cause an adverse environmental impact, an Environmental Impact Assessment to the concerned environmental protection agencies for review and approval prior to project construction. The concept has ramifications in the long run for almost all development activity because sustainable development depends on protecting the natural resources which is the foundation for further development

Programmes and Projects: See under **Decision-Making**.

Status: In 1992, Pakistan attended the Earth Summit in Rio de Janeiro and thereafter became party to various international environment conventions and protocols. These international commitments geared up environmental process in the country. Pakistan developed a National Conservation Strategy (NCS), which was approved by the Government of Pakistan on March 1, 1992. The NCS works on a ten-year planning and implementation cycle. The current cycle is 1992-2001. The NCS deals with 14 core areas which are: maintaining soils in cropland; increasing irrigation efficiency; protecting watersheds; supporting forestry and plantations; restoring rangelands and improving livestock; protecting water bodies and sustaining fisheries; conserving biodiversity; increasing energy efficiency; developing and deploying material and energy renewable; preventing/abating pollution; managing urban wastes; supporting institutions for common resources; Integrating population and environmental programmes; and preserving the cultural heritage. Based on the National Conservation Strategy, policies are being re-directed at institutional strengthening and human resource development, especially at the local and provincial level. The Federal EPA, in collaboration with other key stakeholders, including Provincial EPA's and Planning and Development Division from both the Federal Government and the provinces, other Agencies, NGOs representatives

of Chambers of Commerce and Industry, and academics and consultants, have prepared a package of comprehensive procedures and guidelines for environmental assessment in Pakistan.

Capacity-Building, Education, Training and Awareness-Raising: The Environmental Protection and Resource Conservation Project launched by the Ministry of Environment, LG&RD aimed at capacity building and strengthening of Pakistan's Environmental Protection institutions and also the rehabilitation of several watershed and rangeland areas. Many of its objectives were achieved. Environmental institutions have become stronger, public awareness of environmental issues has increased, participatory approaches and sustainable management practices were introduced on a pilot basis both at community and watershed levels, and an adequate legal and regulatory framework has been developed. The pilot phase of Self-Monitoring and Reporting Programme was initiated for 50 industrial units for the compliance of NEQS. By introducing this system, the Government is placing a high level of trust in the industry to examine and evaluate environmental performance on its own, and to make the information on environmental parameters available to the EPAs. This concept has been introduced for the first time to give an opportunity to the industry to regulate itself, with minimum involvement of the enforcement agencies and draw up their Environment Improvement Plans.

Information: Information regarding various issues of environment is available at the web site of the ministry of Environment Local Government and Rural Development (www.environment.net.pk).

Research and Technologies: The Pakistan Environmental Protection Agencies at federal and provincial level are responsible for research and technology development in environment. The Federation of Pakistan Chamber of Commerce and Industry has also set up an environmental cell and initiated Environment Technology Programme for Industry (ETPI) at a cost of Rs. 240 millions. The Dutch Government and industry itself jointly fund this programme.

Financing: See under **Research and Technologies**.

Cooperation: The Ministry of Environment, Local Government and Rural Development is coordinating the environmental issues with various national, regional and international agencies working for environment. Moreover, various national regional and international NGOs working for environment are also in regular contact with the M/O Environment for the protection of environment. Japan International Cooperation Agency (JICA) has started bilateral cooperation with the Government of Pakistan in the field of environmental protection. The objective is to strengthen the capacity of the environmental administration of EPA through technical cooperation of Japan in areas where it is feasible. JICA, under this technical assistance Programme has stationed a long-term expert in Pak-EP A. Pak-EP A with the assistance of JICA has completed investigation study of air and surface water quality in Lahore, Rawalpindi and Islamabad.

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CHAPTER 9: PROTECTION OF THE ATMOSPHERE

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for policy, planning and coordination of protection of the atmosphere. The Pakistan Environment Protection Council (PEPC) has jurisdiction in vital national decisions and it has established National Environmental Quality Standards (NEQS). The implementation of NEQS is being regularly monitored by the Pakistan Environment Protection Agency.

With the promulgation of Pakistan Environment Protection Act 1997 and notification of the NEQS regulation, the environmental tribunals already established in the two of the four provinces of Pakistan has got the original jurisdiction to try offences relating to atmosphere pollution in Pakistan. Protection of the atmosphere is one of the fourteen core issues in the National Conservation Strategy of Pakistan.

Pakistan has ratified Montreal Protocol and its London Amendments on December 18, 1992, followed by ratification of the Copenhagen Amendments in 1995 for protection of Ozone Layer and is committed to its implementation.

Programmes and Projects: PEPC has approved the National Environment Action Plan (NEAP), which aims at provision of clean air as one of the priority area. The Ministry of Environment, LG&RD is working with UNDP to implement an umbrella project called NEAP support programme. The Ministry of Environment, LG&RD is also implementing the following projects aiming at protection of the atmosphere: Fuel Efficiency in Road Transport Sector Project; Commercialization of Wind Power Potential in Pakistan; GEF Climate Change proposal; and, Pakistan National Communication

The Ministry of Environment, LG&RD has established an Ozone Cell under the project entitled “Institutional Strengthening for the implementation of the Montreal Protocol for the phase-out of Ozone Depleting Substances” with the financial assistance of Multi-Lateral Fund of the Montreal Protocol. This project is under implementation since 1995 at a total cost of US\$ 259,000.

Status: The Clean Fuel Committee established by PEPC has already submitted recommendations regarding sulfur free diesel and lead free petrol and as a follow-up the World Bank has also completed a report on provision of clean fuel in the transport sector in Pakistan which has been forwarded to the Ministry of Petroleum & Natural Resources for implementation. This report is being considered by the Ministry of Petroleum and Natural Resources for implementation. An incentive reduction scheme has been recommended in relation to the emissions from Compressed Natural Gas and Liquid Petroleum Gas powered buses, trucks, and urban public services, and a mandatory introduction of catalytic converters in two-stroke engines has been implemented.

Pakistan is also facing numerous problems from the lack of efficient fuel burning, abnormal exhaust emissions from automobiles, inadequate tuning of engines, and improper repairs and maintenance. These problems mainly affect the larger cities where breathing difficulties can occur during peak-hours. Air quality clashing with the WHO standards is costing Pakistan about Rs. 25 billion a year from adverse health and other effects. The number of vehicles in the country increased from 0.85 million in 1982 to 2.8 million in 1995, showing an overall increase of 229%. It is envisaged that, with the present rate of growth, the number of vehicles will increase to 4.5 million by

Capacity-Building, Education, Training and Awareness-Raising: ENERCON has already trained 900 auto-mechanics for computerized tune up of the motor vehicles. About 9 national stakeholders’ workshops and an international symposium on energy and environment conservation have been held for capacity building and awareness. FERTS newsletter is regularly published for the benefit of general public and stakeholders. Publicity campaign is regularly carried out with a primary focus on environment and energy conservation using various electronic and print media.

Information: Information regarding various activities being carried out by Ministry of Environment, Local Government and Rural Development to protect atmosphere is available on the following websites: the Ministry of Environment LG&RD (www.environment.gov.pk); Energy Conservation Centre (www.ferts.8k.com).

Research and Technologies: The Ministry of Environment & LG&RD in collaboration with the Ministry of Petroleum and Natural Resources has successfully developed the Compressed Natural Gas (CNG) technology which is being commercially used in Pakistan. This has not only helped in the reduction of green house gas emissions in the transport sector but has also greatly decreased the annual oil import bill. ENERCON has also carried out 15 special studies on automobile, policy, energy and environment conservation. These studies also include research and technology development aspects in the field of energy and environment conservation.

Financing: Ministry of Environment, LG&RD is the operational focal point for GEF programme in Pakistan. Pakistan has a GEF portfolio of approximately US\$ 30 million, with cost sharing and parallel financing from bi-lateral donors to the tune of US\$ 10 million. Almost two-third of allocated funds are in the area of biodiversity and the remaining fund is utilized in implementing various projects aiming at protection of atmosphere. Moreover, the Multi-Lateral Fund of the Montreal Protocol provided an amount of US\$ 259,000 to implement Montreal Protocol. The Government of Pakistan has also provided parallel financing in kind and cash for the implementation of these projects.

Cooperation: Government of Pakistan is fully aware of the importance of national regional and international cooperation for the implementation of various multi-lateral agreements aiming at to protection of atmosphere. Therefore, Pakistan has ratified the Framework Convention on Climate Change in 1994 and Montreal Protocol along with its amendments in 1992 and 1995 respectively. These Conventions are being actively implemented through various projects at national and regional levels. The project monitoring and evaluation are being regularly coordinated at national and international level. Cooperation for protection of atmosphere is also extended to NGOs at national and international level.

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CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for the planning and management of land resources in terms of environment protection and conservation. However, the Land Revenue Department under the administrative control of the provincial governments is responsible for management and administration of the land tenure system in Pakistan. The provincial Forests Departments has got ownership right over most of the state control forests areas and is also responsible for administration of community forests in Pakistan.

Programmes and Projects: The Ministry of Environment, Local Government and Rural Development in coordination with line agencies has implemented various projects aiming at planning and management of land resources in Pakistan. Among them the important projects being implemented by this Ministry are:

Pakistan Mountain Areas Conservancy Project (MACP): MACP is being implemented by the Ministry of Environment, Local Government and Rural Development at a total cost of US\$ 10.35 million, with a share of US\$ 1.8 million from GEF resources, US\$ 1.5 million from UNDP and US\$ 0.7 million from Government of Pakistan respectively. This project covers an area of 16000 sq. km. in the province of NWFP and Northern Areas and aims at conservation of habitat and species using integrated approach.

Protected Areas Management Project (PAMP): This project aims at protection and management of three protected areas (Hangol National Park, Blochistan, Chitral Gol National Park, NWFP & Machiara National Park, Azad Jammu & Kashmir) at a total cost of US\$ 10.7 million under GEF financing. The project activities concentrate on improvement of park management involving local communities under the concept of integrated management of the natural resources.

Tarbela Watershed Management Project (TWMP): This project aims at conservation and protection of the catchment areas of Tarbela Dam through soil conservation and afforestation activities at a total cost of Rs. 54 million from the World Food Programme, GTZ and Government of Pakistan resources. The foreign aid has ended in June 2001, which is being continued using the resources of Government of Pakistan for the next five years.

The other projects being implemented for the planning and management of land resources are: Sindh Forestry Development Project; Punjab Forestry Sector Development Project; NWFP Forestry Sector Development Project; and Balochistan Natural Resource Conservation and Management Project.

Status: The Forestry Sector Master Plan (1993-2018) aims at highlighting the forestry issues at national and provincial levels and stipulates an investment of Rs. 48 billion during the next 25 years with resultant increase in the forestry resources from the existing level of 5% of the total land areas of Pakistan to 10%.

Capacity-Building, Education, Training and Awareness-Raising: Pakistan faces a general lack of capacity of institutions to promote an integrated approach to the planning and management of land resources. However, policies related to capacity building, management, and technology is at the planning stage.

Information: Information regarding various activities being carried out for planning and management of land resources are available at the web site of the Ministry of Environment, LG&RD (www.environment.net.pk).

Research and Technologies: Pakistan Forests Institute working under the administrative control of the Ministry of Environment, LG&RD is responsible for research and technology aspects of the land resources in the forestry sector.

Financing: The Government of Pakistan has stipulated to make available an amount of Rs. 48 billion from various national and international sources under the Forestry Sector Master Plan during the 1993-2018. Moreover, an amount of US\$ 10.35 million is currently being spent on Pakistan Mountain Areas Conservancy Project (MACP) and another US\$ 10.7 million on Protected Areas Management Project (PAMP) under GEF, UNDP and Government of Pakistan financing.

See also under **Programmes and Projects**.

Cooperation: Government of Pakistan has ratified the Convention on Biological Diversity in 1994 and the Convention to Combat Desertification in 1994. Moreover, Pakistan has actively implemented the principle one of Agenda-21 for the management, conservation and sustainable development of all types of forests. To implement these Conventions/Principles, Pakistan is actively coordinating with various agencies working for planning and management of land resources at national, regional and global level.

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CHAPTER 11: COMBATING DEFORESTATION

Decision-Making: Forestry is a provincial responsibility in Pakistan with planning, execution and implementation of forests and range management programs vested in Provincial Forest Departments. Forestry Wing headed by Inspector General of Forests in the Ministry of Environment, Local Government & Rural Development is responsible to formulate National Forest Policy, strategic planning, coordination with provincial governments in processing technical proposals on forestry and issues related to natural resource management. Forestry wing through its attached departments i.e. Pakistan Forest Institute, Peshawar, Zoological Survey Department, Karachi and National Council for Conservation of Wildlife assists the Federal and Provincial Governments in areas related to forest education and research, biodiversity conservation and implementation of international conventions and treaties on wildlife and biological conservation.

Programmes and Projects: The sustainable development of renewable natural resources of Pakistan, for the maintenance and rehabilitation of its environment and the enhancement of sustainable livelihoods especially rural masses is the responsibility of Federal and Provincial Governments. Government of Pakistan has prepared 25 years Forestry Sector Master Plan which lays down various strategies to enhance the tree cover in the country and to conserve the natural resources on the basis of eco-system management approach through the participation of all the stakeholders specially the local communities.

At the national level, the Ministry of Environment, Local Government & Rural Development organizes tree planting campaigns twice a year at the beginning of spring and monsoon seasons with the involvement of all the provincial forest departments, federal ministries, local governments, educational institutions, NGOs, communities, etc.

Provincial forest departments are currently implementing following forestry projects: Punjab Forestry Sector Development Project; Development and Rehabilitation of Woodlands and Wildlife Parks in Punjab; Natural Resource Conservation, Afforestation and land stabilization; Upland Rehabilitation; Wildlife and their Habitat Inventories; NWFP Forestry Sector Development Project; Raising of Linear, road side and canal side plantations; Environmental Improvement of Saline and Waterlogged Areas; Establishment of Coconut and Oil Palm Farm; Participatory Watershed and Integrated Land Management; Protected Area Management; Maintenance and Development of Forest Plantations; Development of Sericulture as Industry etc.; Sindh Forestry Development Project; Balochistan Natural Resource Conservation and Management; and, Tarbela Watershed Management Project

In addition to the development objectives, major thrust of these projects is raising awareness of communities for protection of renewable natural resources, providing cost effective substitute to fuel wood, reducing poverty, improving forestry institutions, supporting local governments, preservation of relict forest, promoting value added wood products, human resource development and effective monitoring and evaluation system.

Status: Pakistan is a forest deficit country with 4.2 million hectares of forest area out of the total land mass of 87.98 million hectares. Though the forest resource is meager but it plays an important role in Pakistan's economy by employing half a million people, providing about 3.5 million cubic meters (m³) of wood and one third of the national energy need. Forests and rangelands support about 30 millions herds of livestock which contribute more than US\$ 400 million to foreign exchange earnings. Production of timber from commercial forests is about 0.5 million m³. Forests and trees growing on farmlands are the main source of construction timber in the country. They also protect upland watersheds, and provide wood-fuel, and many non-wood products. Forests are divided on the basis of whether they are state-owned or private-owned forests. The state-owned forests are again divided into four categories: reserved, protected, unclassified and resumed lands. Two-thirds of the public forests are non-commercial. The remaining one-third, located mostly on steep and unstable slopes of the Himalayas, is harvested. Mountain forests are subjected to heavy socio-economic pressures and as such sustainable management of these forests is becoming difficult due to lack of adequate financial resources. The management of riverain and irrigated plantations is also becoming difficult due to scarcity of water and lack of intensified management. Mangrove forests grow on the coast, mainly north and south of the Indus Delta in Sindh and also in a narrow stretch in Balochistan.

Capacity-Building, Education, Training and Awareness-Raising: Pakistan Forest Institute, Peshawar is the primary institute in the country which provides forestry training and education at B.Sc and M.Sc. level in addition to organizing specialized training courses both for technical and professional staff of forest departments, NGOs and communities etc. The institute is also undertaking forestry research for all the provincial forest departments, wood based industries and non-wood forest products in the country. The provincial forest departments also have forests schools imparting technician level training to their field staff. Within the available resources all the forest departments and some NGOs are making efforts to educate the community and enhance their skills for the conservation of renewable natural resources. The provincial forest departments have created special social forestry wings for providing extension services to the masses. In this connection Pakistan needs both technical and financial assistance to update the facilities of education, research and awareness raising technologies for their sustainable management of the natural resources.

Information: Pakistan lacks a well-organized system of forestry database management both at provincial and federal level. It does not have even the trained manpower in the forest departments to manage the forestry information system. Therefore, Pakistan needs both technical and financial support not only to establish an effective monitoring and evaluation system but also to organized forestry database information system in the country. Information regarding desertification is available on the web site (www.environment.net.pk).

Research and Technologies: In Pakistan forestry resource is depleting at an alarming rate due to many factors including climatic, edaphic, anthropogenic and other biotic pressures. Pakistan Forest Institute, Peshawar is the public forest institute having the mandate to carryout research and address forestry problems in the country. The institute does not have up-to-date research facilities and trained manpower. Therefore, PFI, Peshawar needs both technical and financial support to undertake problem oriented research for the management of renewable natural resources through an effective involvement of the stakeholders and conduct refresher level courses for various line agencies and NGOs in the field of integrated natural resource management.

Financing: At the federal level 5-year development plans are formulated, which are then implemented by the provincial Governments. At the provincial level Annual Development Plans are prepared for various sectors including forestry. Thus financing mechanism for forestry programs involves federal, provincial and donor assistance. The total budget estimate in the PSDP for the forestry sector for the year 2001-2002 is Rs. 35.046 million.

Cooperation: Pakistan is a member of a number of forestry related international conventions / treaties signed for natural resource conservation like CBD, CITES, CMS and Ramsar Convention. In addition to this, Pakistan is also member of international organizations like FAO, Wetlands International, International Forum of Forests and IUCN–The World Conservation Union.

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CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

Decision-Making: In addition to the Ministry of Environment, Local Government and Rural Development (LG&RD), the institutions responsible for this sector are the Pakistan Agricultural Research Council, the Arid Zone Research Council, Pakistan Forest Institute, the Pakistan Council of Research in Water Resources, the Pakistan Environmental Protection Agency and Water and the Power Authority. The legislation to combat desertification was revised in 1994. The Ministry of Environment, LG&RD has prepared the National Action Plan to Combat Desertification, which will be placed before the Pakistan Environmental Protection Council in its forth coming meeting for approval.

Programmes and Projects: The Ministry of Environment, LG&RD is working with the provincial governments in implementing various projects aiming at control of desertification in Pakistan. National drainage program was launched to enhance crop production and improve irrigation and drainage system through reduction in water logging and salinity. The program attempts to restore environmentally sustainable irrigated agriculture through following interventions: to minimize saline drainable surplus; to facilitate the eventual evacuation of saline effluent from the Indus basin to the Arabian Sea; and, to improve the operational efficiency of the provincial irrigation departments through institutional improvements.

Among the other projects that address desertification problems in various parts of the country are: Environmental Improvement of Saline and Waterlog areas; Micro Water Resources Development for Barani Areas; Sand Dunes Stabilization in Balochistan; Tarbela Watershed Management Project; and, Suketar Watershed Management Project.

The Forestry Sector Master Plan is also being implemented in all the four provinces of Pakistan with the primary objective of soil conservation, water harvesting and afforestation. Under this umbrella projects numerous small projects are being identified to address the problem of desertification in Pakistan.

See also under **Status** and **Research and Technologies**.

Status: Land degradation is one of the most serious environmental problems faced by Pakistan and its intensity and extent has greatly increased in recent years. This has greatly decreased agricultural and livestock production giving way to increase in poverty. The major causes of land degradation in Pakistan are low organic content, water and wind erosion, waterlogging and salinity/sodicity, flooding and drought. In a bid to increase productivity of soil having low organic matter, farmers are more prone to use chemical fertilizers, which tend to drain other macro and micronutrients.

About 80% of the country is arid and semi-arid, nearly 12% is humid and sub-humid and the balance 8% is humid. The major land uses are agriculture (23%), rangelands (32%), barren land (31%), forestry (4.8%), water bodies (1%), unclassified (8%) and urban areas (0.16%). Of the total area only 20% is potentially good for intensive agriculture and 62% is primarily used for livestock grazing. The agricultural land is seriously subjected to threats of wind and water erosion, salinity/ solidity, waterlogging, flooding and loss of organic matter. Accelerated surface erosion in the upland watershed is reducing life of country's major reservoirs, which provide water to 90% of food and fiber production in the country. Overgrazing has brought down the productivity of rangelands to as low as 15% - 40% of their potential.

The drought has wreaked havoc in 58 of the total 106 districts of the country, especially impacting barani and rangeland areas. Causing devastation and loss of human lives in semi-arid regions, the drought eliminated of US\$ 247 million worth of livestock in the first five months of this year alone. Given that 70% of the entire population of Pakistan is rural based and dependent on agriculture for its livelihood, negative agricultural growth of 2.5% (estimated) has not only impacted agro-based industry, but also displaced a large number of the rural poor. Massive migratory trends have been witnessed, therefore, to irrigated and urban areas. The losses of the agricultural sector will also trickle down to the banking and financial sectors, in view of farmers' outstanding loan obligations and financing needs of agro-based industries.

The over all progress includes construction of 1000 km. new surface drains, remodeling of existing 6,000 km of surface drains, construction of 1,100 km long Tile/Interception drains, rehabilitation of 1,122 number saline tube-

wells, lining of 200 km long canals, provision of 100 mobile pump stations and biological control of 100,000 acres of waterlogged area.

Capacity-Building, Education, Training and Awareness-Raising: Various institutions working for desertification, forestry, salinity and water logging are responsible for capacity, education, training and awareness-raising. Among them the important national institutions are Cholistan Institute of Desert Studies (CIDS) Bahawalpur, Sindh Arid Zone Development Authority (SAZDA) and Pakistan Forest Institute (PFI) Peshawar. PFI is primarily responsible for training and education in forestry and hydrology.

Information: Information regarding desertification is disseminated using electronic and print media in Pakistan. Online information can also be retrieved from the web site of Ministry of Environment, LG&RD (www.environment.net.pk).

Research and Technologies: The public sector institutions working on research and technology development in the field of desertification are as follows:

Cholistan Institute of Desert Studies (CIDS) Bahawalpur: Plant germplasm is collected and screened to select multiple stress resistance species of herbs, shrubs and trees and a seed bank has been established. Tangible results have been achieved in Prosopis, Zizyphus, Tamarix and Acacia tree species and Sporobolus and Panicum-antidotale grasses. Nurseries of these plants are raised for extension among the masses; ethno-botanic surveys of desert plants have been carried out to recommend economically important species for further propagation; Indigenous water harvesting techniques are being studied and improved for further efficiency and sustainability; stabilization of sand dunes through drought resistant vegetation; study and management of indigenous breeds of livestock for increased production of milk and other products; range research experimentation for improvement of rangelands; conservation and preservation of endangered flora of Cholistan.

Pakistan Forest Institute Peshawar: afforestation of arid and semi-arid areas using dry afforestation techniques, rains water harvesting, plastic apron mulching and drought resistant species; afforestation of waterlogged and saline areas using resistant tree species like Acacia nilotica, populus euphratica, Prosopis juliflora, Casuarina equisetifolia and Eucalyptus species proved successful at different experimental sites in the country; and, sand dunes fixation using plant species like Citrulus colocynthus, Callignum polygonoides and Sachharun bangalenses and cuttings of Tamarix aphylla.

Sindh Arid Zone Development Authority (SAZDA): installation of 63 kilometers long drinking water pipeline in Kohistan deserts to provide drinking water for human and livestock in 47 villages; about 287 wells have been dug for water supply; about 441 ponds have been prepared for collection of rainwater; in range management sector, 13 projects and village nurseries have been established for range improvement; multi-purpose tree species have been planted to supply woodfuel, fodder and fruit to the human and livestock in the deserts; and, veterinary services have been provided to the livestock.

Financing: The Government of Pakistan is supporting various projects aiming at desertification control through allocation in annual development programme. The allocation for these projects varies every year, however, on an average almost Rs. 20 to 30 million is allocated for these projects. UNEP has also provided an amount of US\$ 60,000 for preparation of National Action Plan to Combat Desertification in Pakistan.

Cooperation: Pakistan has ratified the UN Convention to Combat Desertification on February 24, 1997 and is actively coordinating with various national, regional and international organizations for implementation and follow-up actions. Various national and local NGOs are also involved to fight against desertification in Pakistan.

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CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

Decision-Making: The institutions responsible for mountain issues are the Governments of Azad Jammu & Kashmir; North West Frontier Province; Northern Area; Punjab and Sindh. The Ministry of Environment, LG&RD is responsible for policy, planning, financing and international coordination regarding sustainable mountain development in Pakistan. The Government of Pakistan has already enacted various legislations to address issues relating to sustainable development of mountain eco-system. Among them important legislations are: Pakistan Environmental Protection Act, 1997, Pakistan Forest Act of 1927, the Hazara Guzara 1936 Act, the Provincial Wildlife Legislation and the Provincial Fisheries Legislation.

Programmes and Projects: The Ministry of Environment, Local Government and Rural Development has implemented various projects aiming at planning and management of land resources in Pakistan. Among them the important projects being implemented by this Ministry are: Pakistan Mountain Areas Conservancy Project (MACP); Protected Areas Management Project (PAMP); Tarbela Watershed Management Project (TWMP); Mangla Watershed Management Project; and, NWFP Forestry Sector Development Project.

The MACP is being implemented by the Ministry of Environment Local Government and Rural Development at a total cost of US\$ 10.35 million, with a share of US\$ 1.8 million from GEF resources, US\$ 1.5 million from UNDP and US\$ 0.7 million from Government of Pakistan respectively. This project covers an area of 16000 sq. km. in the province of NWFP and Northern Areas and aims at conservation of habitat and species using integrated approach.

The PAMP aims at protection and management of three protected areas (Hangol NP, Blochistan, Chitral Gol NP, NWFP & Machiara NP, AJK) at a total cost of US\$ 10.7 trillion under GEF financing. The project activities concentrate on improvement of park management involving local communities under the concept of integrated Management of the natural resources.

The TWMP aims at conservation and protection of the catchment areas of Tarbela Dam through soil conservation and afforestation activities at a total cost of Rs. 54 million from the World Food Programme, GTZ and Government of Pakistan resources. The project cycle is schedule to end in June 2001, which will be continued using the resources of Government of Pakistan for the next five years.

Status: Pakistan has five significant mountain systems: Western Himalayas, Karakoram, Hindukush, Suleman and Kirthar. Pakistan is troubled by the lack of land-use planning and land-use control, uncertain land tenure and an inadequate policy on sustainable development in mountain areas. The monitoring systems of the meteorological situation are poor, and have not improved since the 1980s. The mountain areas, which are cultivated, suffer from soil and water erosion, as well as limited infrastructure and marketing facilities. These problems lead to a need for sustainable economic diversification, especially since, despite intensification of the use of farmlands in the mountain areas, these lands will never be able to accommodate the additional population growth expected and already apparent. Pakistan has constituted a National Coordination Committee to celebrate International year of Mountains 2002 under the chairmanship of Minister for Environment, Local Government and Rural Development. Its first meeting was held in October 2001. A Sub-Committee has been constituted to develop an action plan; which has been drafted and will be finalized. The activities include holding international and national conferences seminar and walks for awareness-raising.

Capacity-Building, Education, Training and Awareness-Raising: Pakistan Forest Institute (PFI) Peshawar is primarily responsible for capacity-building, training and education in forestry and hydrology. The importance of watershed management in Pakistan is a recent development, which has greatly helped in capacity building and training, required for sustainable mountain development.

Information: The Ministry of Environment, LG&RD and other line agencies working for sustainable mountain development in the provincial government, Northern Areas and Azad Jammu and Kashmir are regularly, disseminating information regarding sustainable mountain development rising electronic and print media. Moreover, special workshops, seminars and meetings are arranged to discuss these issues at national, regional and international levels.

Research and Technologies: Pakistan Forest Institute (PFI) is responsible for development of required technologies using various research tools to address the problems of fragile mountain ecosystem. These technologies are transfer to the local communities and other stakeholders involved in sustainable mountain development for replication. Success stories of such technologies are available in the Malakand Social Forestry, Kalam Integrated Project, Hazara Social Forestry and Tarbela Watershed Project.

Financing: Although many projects are being financed using the national and international resources for soil conservation, afforestation and biodiversity conservation in the upland ecosystem, yet no specific project have been implemented to put these threads together in addressing the problems faced by the communities living in the fragile mountain ecosystem. The Government of Pakistan has allocated an amount of Pak Rupees 35.046 million in the PSDP 2001-2002 for forestry sector including mountain development.

Cooperation: Government of Pakistan has ratified the Convention on Biological Diversity and the UN Framework Convention on Climate, Change in 1994. The UN Convention on Combat Desertification was also ratified in 1997 and part of the provisions of these Conventions aims at sustainable mountain development. Pakistan is actively coordinating various national, regional and international institutions in implementing these Conventions. Various local and national NGOs working for the protection and conservation of forests are also involved in Sustainable Mountain Developments.

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CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

Decision-Making: The Ministry of Food, Agriculture and Livestock is responsible for national policy, planning and coordination of issues related to food, agriculture and livestock in Pakistan. Agriculture production and marketing are basically private sector enterprises in Pakistan; however, the provincial agriculture departments provide necessary research and technological support to the private sector. The Government of Pakistan provides on regular basis, policy support, research, extension, education and training to increase ability of the private sector to utilize productive potential and maintain the natural resource base in food security pursuit.

Programmes and Projects: Important projects currently under implementation in various sectors of agriculture are:

On-Farm Water Management (OFWM): Intervention have “Significantly reduced water losses through improving water courses, precision land leveling, building of water storage tanks, training of farmers and establishment of demonstration centres.” Water management interventions are carried out with the participation of farmers and farming community on cost sharing bases.

Social Action Programmes (SAP): Realizing the role of investment in social services, the Government has launched a country-wide Social Action Programme (SAP) to promote productivity, reduce poverty, and encourage smaller healthier, better educational families. Other social programmes launched by the government for economic development are Pakistan Poverty Alleviation Fund (PPAF), Poverty Reduction Strategy (PRS). Khushal Pakistan Program has been launched with Rs.20 million to increase employment opportunities and providing essential infrastructure in rural and low income areas. Khusali Bank is providing micro credit to small and medium enterprises and self employed micro enterprises.

National Rural Support Programme (NRSP): National Rural Support Programme is involved in rural development and poverty alleviation in rural areas. As of January 31, 2001 the NRSP has facilitated formulation of 12,155 community organizations and over 264 thousand households have been organized. While the total credit disbursement up to January 2001 amounts to Rs.2504 billion. The cumulative recovery rate was 93% during 1999-2000. NRSP in collaboration with UNDP has initiated an urban poverty alleviation programme. Under this programme rupees forty million loan was disbursed to 3792 borrowers and recovery rate was 99%.

Status: Agriculture contributes about 25% to GDP, employs 44% of the country’s workforce and also substantially adds to export earnings. Over the last decade, agriculture grew at an average annual rate of 4.5% with some fluctuation in growth mainly on account of weather conditions, pest attacks and adulterated pesticides. Agriculture growth has, however, suffered a severe setback during 2000-01 due to the unprecedented drought situation and shortage of irrigation water to the extent of 40%; eventually causing a decline of 2.5% as against an impressive growth of 6.1% last year.

Since inception of the OFWM department, about 55,000 Water Users Associations have been registered under OFWM and WUA Ordinance 1981 and 47,000 watercourses involving 188,000 km of total length have been remodeled, partially lined and reconstructed, according to engineering design. These interventions have reduced water losses up to 29% and increase in delivery efficiency to the tune of 38.5%. The resulting increase in cropping intensity has been reported nearly 20%, and overall increase in crop yields due to better water use have been estimated around 8.5%.

SAP aim at dealing decisively with the deprivation suffered by Pakistani in terms of social services. It would raise the status of human development; women and children in particular. Investment on education is recognized to be the most important determinants of future economic growth; Hence education is accorded the highest priority, receiving about 70% of designated resources during the first phase of the program (1993-96) and expected to receive about 66% during the second phase (1997-2002). During the first phase, the number of primary schools in Pakistan rose by about 22%, and the corresponding student population rose by 30%.

Capacity-Building, Education, Training and Awareness-Raising: To meet the food security objective and tackle emergencies, infrastructure at various levels has been developed to store buffer stocks and edible commodities in public and private sectors. Social welfare division under the Federal Government has been specifically established to promote and finance social welfare programmes. The government is endeavoring to incorporate several new

dimensions to improve emergency response mechanisms. To achieve this, efforts are being made to further expand the existing infrastructure and adopt integrated approach through participatory institutions at the grass roots level. This could be achieved by: creating widespread opportunities for generating economic growth and improving the composition of such growth to reduce the incidence of poverty from the country; enabling environment for communities at the grassroots level to organize themselves to solve their problems; increasing the role for the private sector in restructuring programmes and emphasizes on the importance, of human resource development as a fundamental requirement for achieving the objectives of growth and equity; developing of a transparent system of NGOs participation in communities development activities to help communities in strengthening income generation programmes; establishing a transparent system of micro-credit facility for the poor, both in urban and rural areas; developing a sound system of training to improve educational and technical skills of the poor; and, ensuring a greater participation of women in pro-poor programmes design and implementation.

Information: Since August 2000, the government had announced an integrated policy on Information Technology (IT). An objective vision of the IT policy is to harness the potential of Information Technology as a key contributor to Pakistan's sustainable development. Information on various issues in the agriculture sector is available on web site (www.parc.gov.pk).

Research and Technologies: In order to develop and spread new technology, the country has a good institutional base for carrying out agriculture education and research. Pakistan Agricultural Research Council (PARC) is the apex scientific body at the federal level. PARC undertakes aids, promotes and coordinates agricultural research in the country by setting up and strengthening of research establishments, high-level training of scientific manpower, acquiring and disseminating the agricultural research information that helps promote expeditious utilization of research results. Seven major institutions of PARC are working in various agro-ecological zones of Pakistan. In addition, six agricultural Economics Research Units are also working under National Agriculture Research Centre. Research has been conducted in this institute on problem identification, technology verification and validation, profitability analysis, monitoring and evaluation. The focus of NARC research is the systems approach where production technology available for various agricultural commodities is synthesized into an integrated system suitable for different agro-ecological regions and socio-economic groups. There are agriculture universities, colleges at different places, Pakistan Atomic Energy Commission, Pakistan Council of Scientific and Industrial Research, Water and Power Development Authority and Pakistan Science Foundation are also involved in research and education in the agriculture sector.

Financing: Agriculture being central to economic development and growth in Pakistan is a dominant sector of the economy and contributes 25% to GDP, employees 44% of country's work-force and contributes substantially to export earnings. The Government of Pakistan is, therefore, giving top priority to research and development initiatives for sustainable agricultural development. Therefore, adequate financial resources are allocated in the National Annual Development Programme. For the financial year 2001-2002 the Government of Pakistan has allocated an amount of Rs. 66.372 million to support the sustainable development initiatives in agriculture sector. This amount also includes foreign exchange component provided by FAO, World Bank and Asian Development Bank for some of the agricultural development projects. Therefore, most of financial resources to cater to the requirements of expanding agricultural operations in the shape of infrastructural facilities, research and development activities have been forthcoming from the government's budget supplemented by foreign assistant. National Rural Support Program in collaboration with UNDP has distributed 39.75 million loan under an urban poverty alleviation programme. Second phase of the Social Action Program started in 1997 with an outlay of Rs.498.84 million, of which the government is contributing about 79.8 percent and rest is financed by the foreign donors.

Cooperation: The Government of Pakistan is giving adequate importance to national, regional and international cooperation in the field of agricultural development. Pakistan is receiving direct support from FAO, UNDP, ADB and the World Bank to implement various projects aiming at sustainable agricultural development.

CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for policy, planning and coordination of issues relating to conservation of biological diversity at national level, however, the provincial governments are responsible for implementation aspects of these issues. Pakistan is party to the Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of Fauna and Flora (CITES), Convention on Wetland Conservation (RAMSAR) and Convention on Migratory Species (CMS) and is implementing these Conventions at national level.

Programmes and Projects: The Ministry of Environment, LG&RD is implementing/executing various projects aiming at conservation of biological diversity in Pakistan. Among them the important projects are:

Pakistan Mountain Areas Conservancy Project (MACP): MACP is being executed by the Ministry of Environment, Local Government and Rural Development at a total cost of US\$ 10.35 million, with a share of US\$ 1.8 million from GEF resources, US\$ 1.5 million from UNDP and US\$ 0.75 million from Government of Pakistan respectively. This project covers an area of 16000 sq. km. In the province of NWFP and Northern Areas and aims at conservation of habitat and species using integrated approach.

Protected Areas Management Project (PAMP): This project aims at protection and management of biodiversity in three protected areas, viz., Hingol National Park, Balochistan, Chitral Gol National Park, NWFP and Machiara National Park, Azad Jammu & Kashmir. The project activities concentrate on improvement of park management involving local communities under the concept of integrated management of the natural resources. The total cost of PAMP is US\$ 10.73 million under GEF financing.

Protection and Management of Pakistan Wetlands: This project is being executed by Ministry of Environment, LG&RD and implemented by WWF Pakistan. PDF funding of US\$ 313,800 has been received from GEF, which is under implementation to develop a full-scale project proposal. The broad objective of the project is to develop and implement a system of intervention and strategic plan for the conservation of representative globally significant of Pakistan wetlands and establish a wetland management planning process and prepare management, plans for selected sites. A number of projects have also been developed by Government Organizations / NGOs for GEF medium size funding including: conservation of representative protected areas through community based management; conservation of habitat and species of global significance in arid and semiarid ecosystems in Balochistan; sustainable management of Chilgoza Forest ecosystem of Suleiman Range in Balochistan, through community participation; Balochistan Juniper Forest conservation through community participation; and, conservation of biodiversity in Sakra Mountain Range in NWFP, through community development.

Status: Pakistan is successfully implementing the CBD, CITES, RAMSAR and CMS. This has resulted in a new lease on life for wild animals and the conservation of protected areas, including wetlands, and coastal areas. Pakistan has 14 National Parks, 98 Wildlife Sanctuaries and 97 Game Reserves, covering 9.17 million hectares, which is 10.4 percent of the total land area of the country. Management Plans have been prepared for 3 additional National Parks. The implementation of the management plans of these National Parks and preparation of the management plans for the remaining National Parks is required immediately. Similarly, many species are endangered and plans for their recovery are to be made immediately.

Capacity-Building, Education, Training and Awareness-Raising: There is a great need for capacity-building in all of the relevant institutions in Pakistan in all of the components of biodiversity. For example, the conservation of species and protected areas management requires the capacity of the provincial wildlife departments. The Provincial Wildlife Departments need to have permanent resource persons to make inventories in the protected areas, since the inventories that are made for PAs are not sufficient for policy formulation. The protected areas need well-trained and well-equipped staff for checking the poaching of wildlife. Properly managed Park Centres are required in order to raise awareness within local communities. Capacity building of relevant government departments and training of the staff and NGOs is being done through the on-going biodiversity conservation projects. An overall strategy, for further education and awareness, has been developed under the National Conservation Strategy (NCS), which contain more detailed plans in provincial conservation strategies. While biodiversity courses are included in the graduate and postgraduate degrees in biological sciences (Botany, Zoology,

Entomology, etc.) at almost all the universities in Pakistan, but no institution is offering a degree programme on biodiversity conservation, wildlife managements, bio-systematic or community-based conservation of natural resources.

Information: Information on country’s biodiversity is scattered among a number of relevant institutions. Pakistan Museum of Natural History, National Herbarium, Rangeland Research Institute and Plant Genetic Resources Institute at National Agricultural Research Centre, Zoological Survey Department and Pakistan Forest Institute under Ministry of Environment, ELG&RD and universities are engaged in gathering information on different component of biodiversity. However, these efforts are inadequate and need to be further strengthened. There is also need to designate a coordinating agency to act as data bank on biodiversity through coordination with all relevant organizations. Biodiversity related information in Pakistan is available at web site (www.environment.net.pk).

Research and Technologies: Research studies on the identification, conservation and sustainable use of components of biodiversity are being conducted by such institutions as: PMNH, National Herbarium, Pakistan Agriculture Research Council (PARC), Pakistan Forest Institute (PFI), Pakistan Council of Research in Water Resources (PCRWR), Zoological Survey Department, National Institute of Oceanography (NIO), and universities. However, shortage of resources and trained manpower has limited the amount of research. As a result there is much to be learned about the conservation and sustainable use of biodiversity. There is also a limited use of traditional knowledge in defining management programmes.

Financing: Only the Convention on Biological Diversity (CBD) has a funding mechanism, while other Conventions do not. The governments, especially developing country parties, have to bear the costs of implementation of the obligations of the Conventions. Therefore, there is a great need for all of the Conventions to be technically and financially supported through the GEF mechanism and extended to all developing country parties.

An investment proposal has been prepared for the management and development of three selected Protected Areas of Pakistan through funding of US\$ 10.73 million by the GEF. A project entitled “Maintaining Biodiversity in Pakistan with Rural Community Development” has been funded by the GEF through UNDP at a cost of US\$ 2.5 million. Upon the successful completion of the project a full-scale project “Mountain Area Conservancy Project has been developed with a total cost of US\$ 10.35 million, which is under implementation. GEF need to financially support the developing countries to implement their national biodiversity action plans.

Cooperation: Pakistan is a Party to all major conventions relating to biodiversity including the Convention on Biological Diversity. Pakistan has taken certain measures to implement these Conventions at national level and is cooperating with other Country Parties to fulfill its obligations in implementing these conventions at international level.

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CHAPTERS 16 AND 34: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY AND TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING.

Decision-Making:

Technologies: The Ministry of Science and Technology is responsible for policy, planning, coordination and development of new technologies in various sectors of science and technology.

Biotechnologies: A special institutional body, the National Institute for Biotechnology and Genetic Engineering, (NIBGE) is in charge of this sector. NIBGE is an active member of National Biosafety Committee and National Biotechnology Commission. NIBGE has an evaluation committee, which annually reviews programmes and makes suggestions for improvements. A Biotechnology Code of Conduct for the Release of Organisms into the Environment has been prepared for national adoption using the code of conduct prepared by UNIDO. The enforcement of the code of conduct is the responsibility of the Biosafety Committee, which certifies Genetically Modified Organisms (GMO). The procedure contains principles on biotechnology risk assessment and risk management. NIBGE tries to involve industry in its work by inviting management to discuss marketing possibilities for environmental protection.

Programmes and Projects:

Technologies: Pakistan is involved in a project called “Transfer of Technology for Sustainable Industrial Development” with the Swiss Government. The project is executed by the Ministry of Environment, Local Government and Rural Development and is being implemented by Sustainable Development Policy Institute (SDPI). It involves two phases: the first one focuses on transferring Swiss technology and investments to Pakistani companies; the second one focuses on capacity building, such as necessary legislation, training and education.

Biotechnologies: NIBGE is involved in many programmes & Projects dealing with Plant Biotechnology, Biofertilizer, Industrial Biotechnology, Bioprocess Biotechnology, Health Biotechnology and Environment Biotechnology.

Status:

Technologies: The Government has encouraged the industrial sector to utilize clean production processes. For this purpose, various incentives are available to industry, which includes preferential treatment in loan facilities by banks and DFIs, and lower import tariffs on anti-pollution equipment. There has not been much headway on the adoption of environmental management systems because of the lack of awareness and the higher cost of ISO certification. However, the government is giving due importance to the matter and the proposal is under consideration to devise a mechanism so that PSI may be accredited to do ISO 14000 certification locally.

Biotechnologies: A National Biosafety Committee was formulated in January 2000. Draft proposal on Biosafety Regulation was prepared and at approval stage by the Federal Government. A national commission on Biotechnology was also announced and a sum of US\$ 0.5 million allotted in July 2001 Co-ordinate the national efforts.

Capacity-Building, Education, Training and Awareness-Raising:

Technologies: Capacity-building in the field of technology aims at enhancement of technical skills of the professionals in various field of technology, which are regularly undertaken by the research and training institutes working in different technological institutions. The technical/vocational training system is being completely reorganized under the education sector reforms. In order to encourage technical and vocational education, 1,100 secondary schools would be set up which would benefit 35,000 students each year.

Biotechnologies: Modern technologies developed at NIBGE to analyze crops food and processed material for GMOS. Workshops are being organized on a quarterly basis to enhance awareness and understanding of biotechnology issues. Traditional methods and knowledge of indigenous peoples are being accommodated in the policies of NIBGE.

Information:

Technologies: Information regarding technologies is available at web site of Ministry of Science and Technology (www.most.govt.pk).

Biotechnologies: A web site (<http://www/nibge.org>) was developed providing recent information about biotechnology NIBGE activity report being published after every two years. Brochures and pamphlets are distributed.

Research and Technologies:

Technologies: No information available.

Biotechnologies: NIBGE is focusing its research on Cotton, Sugar Cane, Potato etc; Biofertilizers (Biopower); Industrial biotechnology; Bioprocess Biotechnology and Environmental Biotechnology and on diagnostics of infectious diseases; Hepatitis C TB, Typhoid and on disorders due to genetic disease, desulphurization of coal and furnace oils, bioleaching of mines burden, treatment of industrial effluents with desulphurization of coal, fuel oil treatment of industrial effluents especially of textile and leather industries. Technologies developed by NIBGE have been marketed through Pakistan Innovative Biotechnology Service (PIBS) to various industrial (Public & Private) sectors for analysis and informed decision-making.

Financing:

Technologies: No information available.

Biotechnologies: Pakistan is included among the 18 countries for the GEF financing. NIBGE was developed by Government of Pakistan with the investment of US\$ 10.00 million.

Cooperation:

Technologies: The Swiss government has granted US\$1 million for the implementation of the second phase of the Pak-Swiss cooperation programme. The SDPI was supported in enhancing capacity and expertise concerning technology transfer by the Norwegian Agency for International Cooperation (NORAD), the Canadian International Development Agency (CIDA) and the Swiss Development Corporation (SDC). The Environment and Urban Affairs Division and Pakistan Environmental Protection Agency have been supported in capacity building by a World Bank funded project on Environmental Protection and Resource Conservation. Pakistan is a member of APO and also benefits from the facilities available through UNIDO, UNEP, and UNDP.

Biotechnologies: NIBGE is regularly coordinating research and development activities with FAO/IAEA Joint division, Finance (Bilateral Programme) and USA Human Resource Development.

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CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES.

Decision-Making: The Ministry of Environment, Local Government and Rural Development is responsible for overall policy, planning, coordination and implementation/execution of various activities in this sector. Protection of High Seas, territorial waters and Port related matters; respective Port authorities are responsible for administration and management. A Marine Pollution Control Board has been established to handle matters, which are related to marine life and environment and resources at risk; to provide advisory services to relevant organizations; and to review monthly progress in combating and controlling marine pollution.

Programmes and Projects: There are two major ports in the country: Karachi Port and Port Muhammad Bin Qasim (PQA). The Karachi Port is mostly polluted by non-port-related activities. An estimated 90,000 tons of oil products from vessels and the port's terminals are dumped every year in the port's water. To address the problem, a green belt around Karachi Port is being implemented. The project includes planting 150,000 mangroves and 350,000 various other plants. An allocation of Rs.350 million was distributed among: Marine Pollution Control Centre which handles emergency oil spills; Marine Environment Unit to monitor water, air, sediment and biota quality.

Port Muhammad Bin Qasim is an Industrial deep-sea port having 12000 acres of Industrial land and 64,000 hectares of mangroves. Earlier, PQA procured marine pollution control equipment worth Rs.40 million and recently the equipment worth Rs. 10 million has been purchased. The present capabilities of PQA to handle oil spills are of Tier-I. The Coastal area within PQA's jurisdiction is cleaner as compared to Karachi Port, but it has inherent threat of marine and air pollution from its Industrial estate and surrounding areas. Large area of Islands and mangroves has been washed away and needs to be protected for which international funding of Rs.300 million is be required. Pakistan has prepared a National Action Plan for the Protection of Marine Environment from the land-based activities under financial assistance from the Regional Seas Programme through South Asian Cooperative Environment Programme.

Status: The Pakistani coast is exposed to negative environmental impacts from thermal pollution, increased oil spills, tarballs, and plastic and toxic effluents, including heavy metal. The coastal strip of Pakistan is arid, with fewer than 20 centimeters precipitation a year. Pakistan has mangrove on approximately 800,000 acres of swamp.

Capacity-Building, Education, Training and Awareness-Raising: Port Muhammad Bin Qasim has developed a facility of Marine Pollution Control Centre including laboratory for monitoring and testing of waters. PQA official have been educated and trained at IMO University Malmo.

Information: Information regarding KPT is available on KPT's website www.kpt.cjb.net. Moreover, a control room has been established in PQA Marine Pollution Control Centre to have access to related information.

Research and Technologies: For research and technological assistance, Centre of Excellence – Marine Biology, University of Karachi extends full support and help.

Financing: Re-afforestation of mangroves in PQA area requires financing of Rs. 300 million for which various national and international funding sources are being explored. See also under **Programmes and Projects**.

Cooperation: Pakistan is signatory to MARPOL-73/78 and OPRC-90. The UN Convention on the Law of the Sea was signed on December 1982 and ratified on 26 February 1997. Pakistan has prepared a National Plan to Protect the marine environment from land based activities under Regional Seas Programme and is actively coordinating these issues with SACEP and other international agencies.

CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES.

Decision-Making: The Ministry of Water and Power is responsible for policy, planning, coordination and implementation of projects and programmes relating to fresh water resources. However, Ministry of Environment, LG&RD and Pakistan Environmental Protection Agency takes care of the quality and supply of fresh water resources. Various NGOs and multi-national agencies are also coordinating with the Government of Pakistan for the protection of the quality and supply of fresh water resources in Pakistan.

Programmes and Projects: The Rawal Lake has been selected for special attention concerning unsustainable activities, such as building latrines at specific locations and construction of septic tanks in the existing settlements. In addition, three projects have been recommended, concerning improvement of catchment areas and the provision of septic tanks and watershed management. In the specific case of pollution control in the Rawal Lake, the Pakistan Environmental Protection Council (PEPC) constituted a Committee under the chairman of the Chief Commissioner in Islamabad. A pilot project in Karachi has been cleared for implementation. The concept of the project is to recycle waste water by sewage collection and by conveying the waste water to irrigate areas via underground pipes. The project also involves the use of a low capital and operating costs [Lagoon] system, and developing 500 hectares of land for irrigation. This project is a joint venture between the Karachi Water and Sewerage Board, and a private Austrian firm. Pakistan also has an on-going research-project, which aims at assessing the water requirements of different species. The idea is to use the information for various forest extension projects. A water survey and analysis was carried out in Quetta, Pakistan.

Status: The flow of the Indus River and its tributaries constitutes the main source of surface water for the country. According to the 74 years of historic data, the average annual inflow of the western rivers at the rim station amounts to 140 million acre feet. The flow varies from year to year. The maximum was 186.79 MAF in 1959-60 and the minimum was 86 MAF in 1999-2000. This presents a variation of more than 65% in the annual average flows. The groundwater storage capacity in Pakistan is estimated to be around 55 MAF (67.8 BM³). The hydrogeological conditions are mostly favourable for pumping by tubewells. It is estimated that 15,504 large capacity public tubewells and 4,69,546 private tubewells of low capacity are currently installed in the country. Thus the ground water pumpage in the Indus basin has increased from 33.4 MAF (41 BM³) in 1959 to about 50 MAF (62 BM³) in 1999-2000. Ground water quality is variable with about 79% of the area in Punjab and 28% in Sindh as fresh ground water suitable for irrigation. However, indiscriminate pumping without proper monitoring and lack of knowledge about the chemistry and hydrodynamics of the aquifer has already contributed to the pollution of the aquifers in certain pockets.

Currently, around 97% of the freshwater is used in the agriculture sector and only 3% is available for domestic and industrial use. Due to prolonged drought, fresh water availability has recently emerged as one of the most crucial issue in Pakistan. With increase in population, per capita freshwater availability in Pakistan is progressively decreasing. Starting from 4.3 acre feet or 5300 m³ per capita availability in 1951, it has reduced to 1.3 acre feet or 1600 m³ in 1991. It is projected that by the year 2005, per capita fresh water availability will further decrease to 1.0 acre feet or 1200 m³. Therefore, starting as a water affluent country in 1951, Pakistan may become water deficient country by the year 2005. This situation warrants most efficient water management both at macro and micro levels. Urban and rural sectors use less than 3% of average river inflow and about 4% of surface water diverted for irrigated agriculture. Most of the urban and rural water is supplied from the ground water sources except for the mega cities. Total requirements for urban and rural domestic, livestock, commercial and industrial needs are estimated at 10.00 million acre feet by the year 2010 and 16 maf by the year 2020. Almost 80% of the domestic, municipal and industrial water diversion returns to the system but with a degraded quality.

The water of Indus River is of excellent quality. The Total Dissolved Solids (TDS) ranges between 60 and 374 parts per million (ppm), which is safe for agricultural irrigation, domestic and industrial usage. The water quality deteriorates down stream but remain within permissible limits up to Kotri Barrage but the TDS in most of tributaries of Indus is beyond safe limits. The quality of ground water varies widely, ranging from less than 1,000 ppm TDS to more than 3000 ppm. Almost 14.2 million acres are underlain with ground water having salinity less

than 1,000 pmm TDS, 4.55 m.a. has salinity ranging from 1,000 to 3,000 ppm TDS and 10.59 m.a. with salinity more than TDS. Presently only 80% of the urban population and 115 of the rural population have access to piped water supply. In most of the cities of Pakistan the waste water from municipal areas as well as the effluent from the industries is disposed of untreated to the natural surface water bodies. It has been reported that about 2,122 million gallon tones of sewage is being thrown in water bodies and there is no proper mechanism for sewage collection and treatment/safe disposal. There is a need for protection of fresh water resources from contamination in the country, for which adequate capacity does not exist with the relevant agencies. The international organizations shall help Pakistan in increasing capacity to handle such issues on scientific lines.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: Information regarding various aspects of fresh water resources in Pakistan is available at web site of Ministry of Environment, Local Government and Rural Development (www.environment.net.pk).

Research and Technologies: No information available.

Financing: No information available.

Cooperation: The Government of Pakistan is actively coordinating freshwater related issues with UNEP, World Bank, Asian Development Bank and the World Water Forum.

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CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS.

Decision-Making: Primarily, two Ministries are involved in the management of chemicals in Pakistan. These are the Ministry of Food and Agriculture which handles pesticides and the Ministry of Production and Industry which produces fertilizers Ministry of Health is of course responsible for controlling the drugs, its involvement is confined to registering the drugs and allowing their manufacturers either to bring them into the country in final form or in CKD or PKD form and pack it locally. In either case, the ultimate ministry for all the three types of chemicals, namely pesticides, fertilizers, industrial and consumer chemicals are the Ministry of Production and Industry. Since the protection of environment and mitigation of pollution is the responsibility of Ministry of Environment, Local Government and Rural Development (LG&RD) hence it is also responsible for the task of chemicals management. Moreover, the Ministry of Environment, LG&RD, also coordinates implementation of international environment agreements relating to these issues.

Programmes and Projects: A Programme has been chalked out for establishment of integrated system for management of chemicals and hazardous wastes through creating an advisory services unit/cell in Pakistan Environmental Protection Agency under Environmental Management and Capacity Enhancement Programme. Pakistan has just entered the field of chemical management. See also under **Programmes and Projects**.

Status: Pakistan possesses approximately 5000 tons of obsolete pesticides, which by implementing the guidelines of the Convention on Persistent Organic Pollutants (POPs) will be greatly reduced to the non-harmful level. The Government of Pakistan is already working to sign and ratify POPs Convention and a summary for this purpose has already been forwarded to the Cabinet for approval.

It is the time it should develop a comprehensive national programme for chemical management. To start with, a focal point is required to be identified for coordination nationally as well as internationally. This coordination should be aimed at developing it into a fully fledged chemicals management activity. For the purpose of management of chemicals in the country, it is imperative that a Chemical management Cell may be established in the Ministry of Environment where basic data on the production/import, storage, distribution, transportation of chemicals, is maintained so that the Ministry is able to coordinate the management of chemicals, its impact on the environment. The proposed cell will develop and maintain national inventory of chemicals import and use and will also develop the chemical regulatory regime policy.

Capacity-Building, Education, Training and Awareness-Raising: One of the functions of the cell is to educate the industry to avoid accidents and to help them in developing chemicals Disaster Contingency Plans. The Chemical Management cell would provide unique forum for networking, awareness building and brainstorming between relevant stakeholders.

Information: Information regarding the issue is available at the Ministry's web site (www.environment.net.pk).

Research and Technologies: The programme will initiate pilot projects with the assistance of industry and academic institutions to minimize and control waste.

Financing: A Government project regarding the tanneries in Kasur City has an estimated cost of Rs. 264 million; it is being financed partly by a UNDP grant of US\$ 6.85 million, and a 30% contribution of the total cost by the Tanneries Association of Kasur.

Cooperation: No information available.

CHAPTERS 20 TO 22: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS, SOLID AND RADIOACTIVE WASTES

Decision-Making:

Hazardous Wastes: The environmentally sound management of hazardous waste is one of the core issues in the National Conservation Strategy of Pakistan. The National Environment Quality Standard is being applied to the issue of waste management. In addition, Pakistan has prohibited the import of hazardous waste in accordance with the Basel Convention.

Solid Wastes: The environmentally sound management of sewerage and solid waste is a core issue in the National Conservation Strategy of Pakistan. Consequently, National Environment Quality Standards have been implemented for issues related to this sector. This has led to some concrete measures: i.e. the waste problems of cement factories are being addressed by installing anti-pollution technology. NEAP Support Program is a product of joint efforts of the Ministry of Environment, LG&RD and UNDP to achieve environmental sustainability through implementation of National Environmental Action Plan, in which “Solid Waste Management” is one of the core areas.

Radioactive Wastes: No information available.

Programmes and Projects:

Hazardous Wastes: Pakistan has implemented a Pollution Release Project to monitor select industries in the Province of Punjab. The project includes data collection and data comparison of the National Environment Quality Standards. The proposed action plan involves the collection of a pollution charge from defaulting industries under the National Environment Quality Standards.

Solid Wastes: Presently there is no single city with properly planning and efficient system of Solid Waste Management (SWM) reaching the acceptable Standard of environmental protection. Under the National Environmental Action Plan (NEAP), Solid Waste Management is one of the core areas where various projects are proposed to be initiated.

Radioactive Wastes: No information available.

Status:

Hazardous Wastes: The industrialization of Pakistan has had an effect on the environment, especially since the discharging of waste is being done without consideration of the treatment facilities that are required to maintain sustainability. The private sector, namely industry, is the target for national policy. Hazardous hospital and industrial wastes are simply treated as ordinary waste.

Solid Wastes: There is practically no solid waste management in Pakistan. Proper methods of dumping their wastes are not employed. Around 40% of the waste is discarded in the streets or at collection sites. In most of the areas solid waste especially plastic bags get into open degradable solid wastes including toxic hospital and industrial wastes area and found lying in heaps. Open burning of waste and bio-non-degradable component of wastes like plastic bags are adding to the pollution problems. Owing to the low levels of development and economy, it has not been possible to make use of latest techniques, technologies and equipment being used in development world.

Radioactive Wastes: No information available.

Capacity-Building, Education, Training and Awareness-Raising:

Hazardous Wastes: No information available.

Solid Wastes: Communities are being encouraged to participate in enhancing solid waste treatment capacities.

Radioactive Wastes: No information available.

Information:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Research and Technologies:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Financing:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Cooperation:

Hazardous Wastes: The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was ratified on 26 July, 1994.

Solid Wastes: UNIDO, Chinese experts, and M/S Environmental Resources Management, U.S.A is assisting the installation of anti-pollution measures in the Cement Industry.

Radioactive Wastes: No information available.

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CHAPTERS 24 TO 32: STRENGTHENING THE ROLE OF MAJOR GROUPS

Women: Decision-Making: The Ministry for Women’s Development, Social Welfare and Special Education is responsible for decision making in the women issues. The Convention on the Elimination of All Forms of Discrimination Against Women was ratified on 12 March 1996. Pakistan has acknowledged that a higher level of development for and contribution from women is a precondition for achieving broad-based sustainable development. Family planning is receiving increased governmental attention because the population growth rate is considered both a hindrance to growth and a threat to sustainability. The active participation of women is being accentuated in this process. Status: There are hundreds of women’s organizations in Pakistan. However, in the rural areas there is no network among NGOs focusing on women’s issues.

Children and Youth: No information available.

Indigenous People: No information available.

Non-governmental Organizations: Status: In Pakistan, there are thousands of NGOs, hundreds of which are involved in environmental issues. The most prominent national NGOs working for environment are in Pakistan International Union for Conservation of Nature (IUCN), Sustainable Development Policy Institute (SDPI), SANGI, PIADAR and LEADS-Pakistan. Others are involved in the promotion of education, public awareness-raising and the empowerment of women. The assistance of the NGOs to the Government is appreciated and considered productive. The National Conservation Strategy is based on the early warning and awareness-building facilities that the NGOs provide. Financing: The Ministry of Environment, Local Government and Rural Development allocates around Rs. 30 million annually to NGOs for undertaking small-scale projects.

Local Authorities: Decision-Making: The implementation of projects related to Agenda 21 issues is very much the responsibility of Provincial Governments. Programmes and Projects: Pakistan has initiated cross-sectoral projects, which will enhance capacity regarding infrastructure, collecting and managing solid waste data, as well as other services for ten urban areas. Capacity-Building, Education, Training and Awareness-Raising: The Provinces of Punjab and Sindh are planning projects, which will contribute to increased public awareness and educational training. The Asian Development Bank and the World Bank will fund some of them.

Workers and Trade Unions: No information available.

Business and Industry: Decision-making: No concrete action has been taken in this area. However, recommendations towards the promotion of cleaner industrial production, general recycling, waste trading network, businesses etc. are all part of the National Conservation Strategy. The Government has developed a strategy to tackle the issue. The crux of the strategy is private public partnerships for the promotion of cleaner production. Programmes and Projects: A number of projects encouraging the concept of stewardship in management and use of natural resources have been launched in the public and private sectors. Some of the major projects include a tannery pollution control project in Kaur, Korang; a pollution control project in Karachi; development of a textile processing industrial estate Faisalabad; and an environmental technology programme for industry (ETPI). Cooperation: Following international organizations provide assistance to this sector: UNIDO, UNDP, UNEP, JICA, NORAD, and CIDA.

Scientific and Technological Community: Decision-Making: The National Scientific and Technological councils and associations are widening their membership. These organizations have launched various programmes for the benefit of the general public.

Farmers: Programmes and Projects: Various projects and programmes are in operation whereby farmers are being encouraged to apply sustainable farming practices.

CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Decision-Making: No information available.

Programmes and Projects: See under the heading **Financing** in the various chapters of this Profile.

Status: See under the heading **Financing** in the various chapters of this Profile.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Cooperation: See under the headings **Financing** and **Cooperation** in the various chapters of this Profile.

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CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

Decision-Making: No information available.

Programmes and Projects: See under the heading **Research and Technologies** in the various chapters of this Profile.

Status: Science for sustainable development is at an early stage, which is reflected in its weak capacity features. For example, the science sector is not involved in decision-making at any level. It has not been given the attention that Agenda 21 calls for, in terms of increasing the number of scientists, nor the number of women being trained as scientists. In addition to the lack of promoting more scientific personnel, Pakistan has a serious problem with brain drain to other countries.

Capacity-Building, Education, Training and Awareness-Raising: See under the heading **Research and Technologies** in the various chapters of this Profile.

Information: No information available.

Research and Technologies: See under the heading **Research and Technologies** in the various chapters of this Profile.

Financing: No information available.

Cooperation: No information available.

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CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

Decision-Making: The Ministry of Environment, Local Government and Rural Development has been responsible for this area, in its collaboration with the media. Public awareness campaigns have been launched through television, radio and the press. Non-governmental organizations and other stakeholders such as local communities have been involved in mass awareness campaigns in the media.

Programmes and Projects: Among other initiatives, a voluntary Environmental Corps has been established to monitor afforestation programmes and pollution control. Over 3000 Environmental Education Clubs have been set up in various parts of Pakistan. These clubs perform various tasks, from assisting the Mass Afforestation Programme, to educating the public, and operating as pressure groups. At the Pakistan Forest Institute a specific programme in forestry development has been developed for women. The Government has decided to impose a compulsory research paper on the environment at secondary and intermediate school levels. General recommendations have been made aiming at educational measures in decision making, and to enhance environmental subjects in school textbooks. The Teachers Training Centre of Excellence in Islamabad is providing training for educators at the tertiary level. UNEP has offered to provide assistance to the programme. The Government has also introduced a module on the environment in its Certificate of Teaching and Primary Teacher's Certificate courses.

Status: Even with a low literacy rate of 27%, Pakistan has still managed to launch many activities, which will increase general knowledge about sustainable development.

Information: A library and documentation centre will be established in Pakistan's Environmental Protection Agency. This centre will also be available to educational institutions, industry and non-governmental organizations.

Research and Technologies: No information available.

Financing: The Ministry finances writers and media to communicate the message of sustainable development. The Journalists' Resource Centre for the Environment (JRC) trains journalists in reporting on the environment by running field workshops.

Cooperation: No information available.

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**CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR
CAPACITY-BUILDING IN DEVELOPING COUNTRIES.**

This issue has been covered either under Chapter 2 or under the heading **Cooperation** in the various chapters of this Profile.

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CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

This issue deals mainly with activities undertaken by the UN System.

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CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

This issue has been covered under the heading **Cooperation** in the various chapters of this Profile.

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CHAPTER 40: INFORMATION FOR DECISION-MAKING

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising:

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER: INDUSTRY

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising:

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER: SUSTAINABLE TOURISM

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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