



**Frontispiece:** The relationship between the major components of the *Pakistan Wetlands Project*. The Project embodies two interrelated *immediate objectives*:

??The first consists of a suite of initiatives designed to create a national environment in Pakistan that will enable the mainstreaming of wetlands conservation. It will provide the required policy, institutional, technical and financial framework and generate positive public support essential for the sustainable conservation of globally significant biodiversity in naturally occurring wetlands.

??The second objective involves the design and implementation of progressive, participatory management plans for four independent *Demonstration Sites*, each chosen to be representative of a broad eco-region in Pakistan. It includes specific mechanisms to enhance replication and proliferation of viable wetlands management interventions as part of a nation-wide, on-going wetlands conservation initiative.

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## PROJECT BRIEF

### 1. Identifiers

<b>Project Number:</b>	PIMS no. 1056
<b>Project Name:</b>	<i>Protection and Management of Pakistan Wetlands Project</i>
<b>Duration:</b>	7 years. 1 October 2003 – 30 September 2009
<b>GEF Implementing Agency:</b>	United Nations Development Programme
<b>Executing Agency:</b>	Ministry of Environment, Government of Pakistan
<b>Requesting Country:</b>	The Islamic Republic of Pakistan
<b>Eligibility:</b>	Pakistan ratified the <i>Convention on Biological Diversity</i> in July 1994.
<b>GEF Focal Area:</b>	Biodiversity
<b>GEF Operational Programme:</b>	The project fits primarily within OP 2 Coastal, Freshwater and Marine Ecosystems but is also relevant for OP 1, Arid and Semi-arid Zone Ecosystems; OP 3, Forest Ecosystems; and OP 4, Mountain Ecosystems.
<b>GEF Strategic Priority:</b>	The project is in line with <u>Strategic Priority 2</u> for the Biodiversity Focal Area, " <u>Mainstreaming Biodiversity Conservation in Production Systems and Landscapes</u> ".

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### 2. Summary

The *Protection and Management of Pakistan Wetlands Project* aims to promote the sustainable conservation of freshwater and marine wetlands and their associated globally important biodiversity in Pakistan. The Project strategy is based on two sub-sets of objectives. The first will provide the required policy, institutional, technical and financial framework and generate positive public support essential for the mainstreaming of wetlands conservation. The second involves the design and implementation of progressive, participatory management plans for four independent *Demonstration Sites*, each chosen to be representative of a broad eco-region in Pakistan. It includes specific mechanisms to secure financial sustainability and enhanced replication and proliferation of viable wetlands management interventions in a nation-wide, on-going wetlands conservation initiative.

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### 3. Costs and Financing

GEF Full Project .....	US\$ 2,991,350
PDF-B .....	US\$ 342,000
<i>Sub-total GEF</i> .....	US\$ 3,333,350
<b>Co-financing:</b>	
UNDP (Committed).....	US\$ 1,500,000
WWF International Network (Committed) .....	US\$ 1,200,000
Potential Donors (EU and Other International) .....	US\$ 6,064,063
PDF-B .....	US\$ 25,000
<i>Sub-total Co-financing</i> .....	US\$ 8,789,063
<b>Total Project Cost (Full Phase)</b> .....	US\$ 11,755,413
<b>Total Project Cost (Full Phase + PDF-B)</b> .....	US\$ 12,122,413

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### 4. Associated Baseline Financing .....US\$ [under review]

### 5. Operational Focal Point Endorsement

Mr. Jawed Ali Khan, Ministry of Environment, Government of Pakistan  
**Date:** 7 March 2003

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### 6. Implementing Agency Contact

Tehmina Akhtar, Regional Coordinator – West Asia, Biodiversity/International Waters, UNDP  
304 East, 45<sup>th</sup> Street, 9<sup>th</sup> Floor, New York, NY 10017, USA,  
Tel: ++1 212 906-5460 Fax: ++1 212 906-6998

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## List of Acronyms and Abbreviations

AJK .....	Azad Jammu and Kashmir	NDP .....	National Drainage Programme
AKRSP .....	Agha Khan Rural Support Programme	NCS .....	National Conservation Strategy
BAP .....	Biodiversity Action Plan	NEQS .....	National Environmental Quality Standards
BCS .....	Balochistan Conservation Strategy	NEAP .....	National Environmental Action Plan
C .....	Centigrade	NGO .....	Non-Governmental Organisation
c .....	Approximately	NPD .....	National Project Director
CBD .....	Convention on Biological Diversity	NRM .....	Natural Resource Management
CBO .....	Community-based Organisations	NWFP .....	North West Frontier Province
CIESIN .....	Centre for International Earth Science Information Network	NWCS .....	National Wetlands Conservation Strategy
CITES .....	Convention on International Trade in Endangered Species of Flora and Fauna	NWMC .....	National Wetland Management Committee
CIWC .....	Central Indus Wetland Complex	NY .....	New York
CTA .....	Chief Technical Advisor	OP .....	(GEF) Operational Programme
DEM .....	Digital Elevation Model	PA .....	Protected Areas
DFID .....	Department for International Development (UK)	PAMP .....	Protected Areas Management Project (World Bank/GEF)
DNA .....	Deoxyribonucleic Acid	PDF (B) .....	Project Development Fund - Category B
e.g. ....	<i>Exempla gratia</i> - for example	PCDP .....	Palas Conservation and Development Project
etc. ....	et cetera	PCOM .....	Project Cycle Operations Manual (UNDP-Pakistan)
FY .....	Financial Year	PMU .....	Project Management Unit
GEF .....	Global Environment Facility	PRA .....	Participatory Rural Assessment
GIS .....	Geographic Information System	PSC .....	Project Steering Committee
GoP .....	Government of Pakistan	PWP .....	Pakistan Wetlands Project
GPS .....	Geographic Positioning System	PWRI .....	Punjab Wildlife Research Institute
ha .....	Hectares	PY .....	Project Year
IBIS .....	Indus Basin irrigation System	Rs .....	Rupees
<i>In-situ</i> .....	In place	S .....	South
IUCN .....	The World Conservation Union	SCUBA .....	Self-contained Underwater Breathing Apparatus
IUCN-P .....	IUCN Pakistan	SP .....	Strategic Priority
IWRB .....	International Wetlands Research Bureau	SRWC .....	Salt Range Wetlands Complex
K .....	1,000	TA .....	Technical Assistance/Technical Advisor
km .....	Kilometres	TCBS .....	Training and Capacity Building Section
km <sup>2</sup> .....	Square kilometres	TPR .....	Tripartite Review
K2 .....	Karakoram Peak #2 ( <i>Chogori</i> or Mount Godwin-Austen)	TRAC .....	Trans-national Resource and Action Centre
M2 .....	National Motorway Number 2	TREC .....	Technical Resource and Equipment Centre
MACP .....	Mountain Areas Conservancy Project	TV .....	Television
MAP .....	million acre-feet	UNDP .....	United Nations Development Programme
MCWC .....	Makran Coastal Wetlands Complex	US or USA .....	United States of America
MOE .....	Ministry of Environment, Local Government and Rural Development	VHF .....	Very High Frequency
m .....	Metre	WAPDA .....	Water and Power Development Authority
N .....	North	WCMC .....	World Conservation Monitoring Centre
NAWC .....	North-west Alpine Wetlands Complex	WSPS .....	Wetlands Survey Programme Section
NCCW .....	National Council for the Conservation of Wildlife	WWF .....	World Wide Fund for Nature
		WWF-P .....	World Wide Fund for Nature, Pakistan
		WWF-UK .....	World Wide Fund for Nature, United Kingdom
		4x4 .....	Four-wheel drive or all-terrain vehicle

### A note on the formatting of this document for readers

This document has been produced using MS-Word® 2000 and is formatted for US Standard Letter Paper (8.5" x 11"). If reprinted, the paper size should not be changed as this will effect the layout of imbedded figures and tables.

# Protection and Management of Pakistan Wetlands Project

## 1. Background and Project Context

### 1.1 Environmental Context:

1. The 883,000 km<sup>2</sup> portion of the South Asian Sub-continent that falls under the jurisdiction of the *Islamic Republic of Pakistan* consists of an irregular, elongated, polygon that extends through 13.4° of latitude from 23.6°N to 37.0°N. Geomorphological diversity within Pakistan has given rise to a wide range of ecological conditions. **Vegetation types** that have evolved to occupy these physical environmental niches in the country include elements of several of the world's major ecological regions. Udvardy's (1975) classification incorporated elements of the *Indo-Malayan* and *Palaeartic* realms and Roberts (1991), based on his work in Balochistan, included a third, the *Ethiopian* or *African Realm*. The country also includes four of the world's ten major biomes: desert, temperate grassland, tropical seasonal forest and mountain<sup>1</sup>. Between nine and twelve major **plant ecological zones** have been recognised within the country resulting in a surprising level of speciation. (See: *Optional Annex 36*). Although the rate of **endemism** in Pakistan is low, this may be explained by the reality that the country's borders were drawn for political reasons, largely out of context with any natural barriers. From an ecological perspective, it makes more sense to evaluate endemism on a sub-regional basis in the vicinity of Pakistan. The country lies at the crossroads of Asia's major Palaeartic **bird migration routes**. At different times in the annual cycle, there are substantial concentrations of passage migrants; at others there are influxes of winter visitors from northern breeding grounds or summer breeding migrants from the Indus Plains or northern alpine regions. This is believed to be a consequence of the country's geographic location between the great Rajasthan and Iranian Deserts in the east and west, respectively, the barriers created by the Himalayas, Hindukush and Karakoram Mountains in the north and by the Arabian Sea in the south.
2. **Wetlands:** Despite the generally arid nature of Pakistan's climate, the region supports an estimated 780,000 ha of wetlands that cover 9.7% of the total surface area of the country<sup>2</sup>. In excess of 225 significant wetlands sites are on record in the prototype *Pakistan Wetlands GIS Database* developed during the *PDF (B) Phase* of this Project. Nineteen of these have been internationally recognised by the *Ramsar Convention Bureau* as being of global importance. (See: *Optional Annex 30*). The diverse assortment of natural freshwater and marine wetlands that occur within Pakistan support unique combinations of biodiversity. The same resource, however, also sustains an estimated 144 million permanent human residents<sup>3</sup> and 3 – 4 million displaced persons from adjacent countries. The wetlands of the region are, therefore, generally degrading under a broad spectrum of anthropogenic threats that are mainly rooted in poverty but exacerbated by lack of knowledge and mismanagement.

### 1.2 Global Significance

3. Pakistan's permanent and ephemeral wetlands are globally significant in two ways: first, in terms of the intrinsic value of their indigenous biodiversity and secondly, as an acute example of the *poverty/subsistence-use nexus* that constitutes one of the most fundamental threats to biodiversity worldwide. The high global significance of Pakistan's wetlands is attributable to the diversity of species that they support. In all, eighteen threatened species of wetlands dependent mammals are found in the country including the endemic Punjab Urial (*Ovis vignei punjabiensis*) and Indus River Dolphin (*Plantanista minor*). Further, twenty threatened bird species are supported by Pakistan's wetlands in addition to twelve reptiles and two endemic species of amphibians. Pakistan's wetlands also support between 191-198 indigenous freshwater fish species (including fifteen endemics) and a total of 788 marine and estuarine fish species<sup>4</sup>. The high altitude wetlands, characterised by sites such as Karumbar Lake, situated at an elevation of 4,150 m, and Shaucer Lake, at 4,250 m on the Deosai Plains, represent a relatively unique category of alpine wetlands that is confined to the Himalayas, Hindukush and Karakoram mountain cordilleras.

### 1.3 Socio-economic Context

4. Pakistan has been burdened by both poverty and over population since its inception as an independent state in 1947. An estimated 84.7% of Pakistan's population lives below the international poverty line of US \$2.00/day. The level of human and social development is low with 51% of the population living without access to education and 55% unable to reach basic health services. Poverty is exacerbated by a high population growth rate, which, at 2.4%, is substantially more than that of South Asia (1.9%) and other low-income countries (1.9%) as a whole<sup>5</sup>. The majority of

Pakistan's population (67%) resides in the rural areas that also support the bulk of the poor. These factors combine to exert an inordinate amount of pressure on Pakistan's natural resources, including wetlands that play a vital role in supporting livelihoods for the poor. Since their ownership of assets such as land remains low, the poor are obliged to use common property resources for subsistence. These include wetland resources such as emergent vegetation, freshwater and marine invertebrates and fish, and both resident and migratory birds. This level of economic dependence may be acute for specific vulnerable groups like landless, impoverished women and migrant communities. The socio-economic surveys performed during the PDF (B) Phase of this Project indicated that women form a key group that interacts intensively with wetland resources even though they are marginalised in NRM regimes. Tribal and migrant communities are another important social group that are intensely dependent on wetlands resources. Consisting largely of forest-users, fishermen and livestock herders, such communities have few incentives to conserve wetlands once their immediate livelihood needs have been fulfilled. Surveys found that a lack of alternate livelihoods, access to credit, health and educational facilities and a negotiated stake in NRM were key factors that could be addressed to create incentives for migrant communities.

#### 1.4 Policies, Legislation and Institutions

5. Pakistan has demonstrated its commitment to biodiversity conservation by supporting international agreements such as the *Ramsar Convention*<sup>6</sup> (1978), the *Bonn Convention on Migratory Species* (1987) and to the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* or CITES (1976). Nineteen of Pakistan's wetlands had been designated as Ramsar sites by June, 2003. At the national level, Pakistan formulated a *National Conservation Strategy* (NCS) in 1992 and a *Biodiversity Action Plan* (BAP) in 2000 to provide a policy framework for biodiversity conservation. The BAP calls for the integration of national policies, development of appropriate legislation measures for *in-situ* and *ex-situ* conservation of species, research and raising public awareness for sustainable management of Pakistan's biodiversity. It emphasises the value of wetlands as important repositories of biodiversity. The country launched a *National Environment Action Plan* (NEAP) in 2001 as a follow-up to the recommendations of the mid-term review of the NCS. The plan includes ecosystem management as one of the four core areas and wetlands management and protection is a component of the *ecosystems management core area*. Pakistan has also formulated a draft Wetlands Action Plan (WAP) that was officially adopted by the GoP in 2000. In providing an overview of the scope and condition of Pakistan's wetlands, the WAP highlighted poverty and institutional deficiencies as the prime factors contributing to the degradation of wetlands resources.
6. Pakistan's conservation laws provide for the creation of a range of Protected Area (PA) categories including Wildlife Sanctuaries, National Parks, Game Reserves and Unclassified PAs. Of the four wetlands complexes selected for the Project, three include PAs (**See: Optional Annex 37**). Provincial and territorial legislation that provides the legal framework for biodiversity conservation includes: (a) Azad Jammu and Kashmir Wildlife Act (1975); (b) Balochistan Wildlife (Protection, Preservation, Conservation and Management) Act (1974); (c) Islamabad Wildlife (Protection, Preservation, Conservation and Management) Ordinance (1975); (d) Sindh Wildlife Protection Ordinance (1972, amended 1993); (e) Punjab Wildlife (Protection, Preservation, Conservation and Management) Act (1974, amended 1991); and (f) NWFP Wildlife (Protection, Preservation, Conservation and Management) Act (1975). In addition, forestry-related legislation such as the Forest Act (1927) and other provincial/territorial legislation place restrictions on forest use. The Pakistan Environmental Protection Act (PEPA) of 1997 that includes the National Environmental Quality Standards (NEQS) provides a legal framework to control environmental pollution.
7. At the federal level, the Ministry of Environment (MoE) has the institutional responsibility for coordinating all efforts related to natural resources and environmental management through four directorates: (a) *The Environmental Protection Agency* (EPA); (b) *Forestry*; (c) *Environment*; and (d) *The Energy Conservation Agency* (ENERCON). *The Forestry Wing*, headed by the Office of the Inspector General of Forests (IGF), is principally responsible for overseeing provincial biodiversity conservation initiatives and for national compliance with international obligations to which Pakistan is a signatory. The IGF is assisted in these tasks by the *National Council for the Conservation of Wildlife* (NCCW), the *Zoological Survey Department* (ZSD) and the *Pakistan Forestry Institute* (PFI). The NCCW is primarily responsible for maintaining links with international agencies such as the *Ramsar Bureau* and for co-ordinating Pakistan's activities in accordance with its international obligations and agreements. The ZSD monitors the fauna of the country and maintains records of

important biota, especially migratory waterfowl that visit Pakistan's wetlands. The PFI is a research-based institution that offers comprehensive training in forest management.

8. Implementation of activities for biodiversity conservation, including the protection of wetlands sites, is the responsibility of the *provincial/territorial wildlife agencies*. Their mandate includes the management of PAs and enforcement of restrictions on resource-use. They have also collaborated in several successful attempts to involve communities in biodiversity management including sustainable trophy-hunting initiatives in Northern Areas, NWFP and Sindh. Forest use in wetland areas is principally regulated by the *Provincial/Territorial Forest Departments* that also provide licenses for commercial extraction of wood and impose fines for violations of regulations governing grazing and timber felling in government forests. Recognising the importance of community participation in forest management, joint forest management approaches have been implemented in NWFP and Punjab.
9. With the significant exception of the *Salt Range Wetlands Complex*, where private land claims exist on portions of the area occupied by the lakes, wetlands generally remain either government or communal property. Property in the vicinity of wetlands, especially agricultural land, is usually privately owned but registered by the *Land Revenue Department*. *Provincial/Territorial Fisheries Departments* are responsible for awarding fishing contracts and monitoring harmful fishing practices. The *Provincial Irrigation Departments* manage the network of irrigation headworks, canals and associated reservoirs that make up the *Indus Basin Irrigation Scheme (IBIS)* and a few smaller irrigation works in other parts of the country. The *Provincial/Territorial Agriculture Departments* provide agricultural extension services and the *Livestock Departments* deal with the maintenance of livestock, control of stock disease, etc. For strategic reasons, substantial wetland areas are under the control of military agencies such as the *Pakistan Navy* and *Coast Guards* that have jurisdiction over parts of the *Makran Coastal Wetlands Complex*.
10. Other agencies of note consist of the *Rural Support Programmes* at national and provincial/territorial levels. These provide credit and training to low income households for a range of income generating projects in order to reduce poverty. Several NGOs and Community-Based Organisations (CBOs) also operate in such areas, notably the *Soan Valley Development Project* in the SRWC and the *Ornithological Society of Pakistan* in the CIWC. Major non-governmental institutions working closely with wetlands include the *World Conservation Union (IUCN-P)*, *Himalayan Wildlife Foundation*, *Houbara Foundation* and *World Wide Fund for Nature (WWF-P)*. IUCN-P has taken an active role in strategy formulation for biodiversity conservation while WWF-P has been an active partner in implementing community-based conservation initiatives.
11. Local institutional capacity for addressing environmental issues is also being strengthened in terms of the GoP's 2002 initiative to promote decentralisation and devolution of administrative power. At the provincial/territorial level, *Environmental Tribunals* have been established to address violations of the *Pakistan Environmental Protection Act* and the *National Environmental Quality Standards (NEQS)*. These Tribunals consist of representatives of government, non-government and private sectors. At the district level, senior civil judges or magistrates are empowered to decide cases involving environmental offences and violations of the NEQS. At both district and tehsil<sup>7</sup> level, representatives of the MoE are appointed in the offices of the *District - and Tehsil Nazims*<sup>8</sup> to investigate and take immediate action on significant violations of the NEQS. These structures are aimed at strengthening local capacity for environmental management, encouraging community participation in local environment management and ensuring devolved decision making on environmental issues.

### **Threats to Globally Significant Biodiversity**

12. Field surveys conducted during the PDF (B) phase of the *Pakistan Wetlands Project (PWP)* identified proximal (direct) and distal (indirect) threats to wetlands in Pakistan and their underlying causes. These threats fall into three categories:
13. **Unsustainable anthropogenic use of wetlands:** This encompasses a broad category of activities such as *destructive fishing practices*, *over harvesting* of wetlands vegetation, unsustainable *hunting* and localised *over-grazing* in and around wetlands. In most cases, each category consists of a spectrum of individual or inter-linked harmful practices. In the context of fishing, these practises include the use of explosives, inappropriate nets, net material or netting techniques, over extraction of juvenile life forms, unacceptably high by-catch levels and failure to observe prescribed seasonal and species-specific restrictions. Similarly, floating and emergent vegetation may be excessively extracted for fuel and grazing or to support industries such as rope, basket, mat and blind making.

Migrant water fowl and wild goat species are widely hunted for subsistence and sport purposes. Excessive grazing has, in many areas, resulted in soil erosion and siltation. The **underlying causes** of this general category of threat are principally related to the perception that the resources in question are part of an *open-access system*. Such constraints as may exist, are ineffective and penalties for illegal or inappropriate resource-use are often not significant enough to be prohibitive. These inappropriate practices generally stem from policy shortcomings, lack of alternate livelihoods, failure to enforce regulations and the inadequacies of communal property management regimes.

14. **Physical changes to wetlands on an eco-system level:** While the previous category of threats results in direct impact on individual components of wetland biodiversity (i.e., those species that are hunted or harvested), the threats in this category cause much more extensive physical changes to the ecosystem that negatively impact upon many attributes of wetlands. Included in this category are activities such as land reclamation, deforestation and over-grazing of catchment areas. Land reclamation problems are especially evident in the SRWC and CIWC, where expansion of agricultural area is a common practice. Widespread deforestation, especially in the SRWC, has caused substantial losses of wetlands habitat through siltation. The **underlying causes** of this category of threats are similar to those in the previous type such as the perception of an *open-access* resource complicated by additional factors including the failure of decision-makers to adequately transfer appropriate environmental costs directly to users.
15. **Off-site activities that cause physical and chemical changes to wetlands:** These include practices that take place in locations other than the wetlands themselves but which may result in dramatic impacts on wetlands. The two most significant threats in this category include changes in water flow regimes or levels and water pollution. The geographic and temporal extent of wetlands in the CIWC, for example, has been adversely altered by impoundments and the upstream extraction of water for irrigation purposes. Agrochemical pollution has led to increased eutrophication in SRWC and CIWC and industrial pollution has been implicated in reducing fish stocks in the CIWC and MCWC. Marine pollution, mainly from minor oil spills, also negatively impacts the MCWC. The **underlying causes** of this category of threats mainly stem from policy inadequacies, lack of enforcement and a pervasive lack of awareness.
16. Given these threats and underlying causes, the Project strategy seeks to implement a range of activities that will address the underlying causes, thus sustainably removing the threats. Such activities include:
  - ?? Implementation of user rights agreements e.g., *Outputs 7.4, 8.4, 9.4 and 10.4*, to address the issue of *open-access resources*;
  - ?? Development of local capacity to establish and operate appropriate institutions to regulate user rights effectively, including improved enforcement e.g., *Outputs 7.7, 8.7, 9.7, 10.7*;
  - ?? Training in support of such regulatory institutions e.g. *Outputs 4.2 – 4.10*;
  - ?? Introduction of diversified income opportunities, to provide alternatives to those that may be negatively affected by the application of user rights systems e.g. *Outputs 7.5, 7.8, 8.5, 8.8* etc;
  - ?? Awareness and education programmes in support of the afore-mentioned activities e.g., *Outputs 5.2 – 5.11*;
  - ?? Strengthened governance of wetland resources e.g. *Outputs 3.2 and 3.3*; and
  - ?? The development of decision-making systems and management tools underpinned by the Wetlands GIS *Outputs 2.1-2.3*.

Other activities identified below serve to create the appropriate conditions to allow the effective application of these key interventions.

## 2. Baseline Course of Action

17. Although on a limited scale, issues surrounding wetlands and waterfowl were the prime movers in the early development of government conservation programmes in Pakistan.

### 2.1 Wetlands Management

18. Some twenty years after Pakistan's independence, an exploration sponsored by WWF–UK revealed that wildlife and wetlands resources in Pakistan were severely threatened and, in most areas, declining in condition. The expedition report prepared by Mountfort (1967) recommended that a range of wetland sites be declared PAs. Other early efforts included extensive surveys made by



Savage (1967 - 1970) and Koning (1970, 1976, 1987 and 1989). Koning's field work was supported by the *International Wetlands Research Bureau (IWRB)* and he made the first ever effort to train provincial conservation staff in waterfowl identification<sup>9</sup>. Pakistan ratified the *Ramsar Convention* in 1975 and, simultaneously, nine wetland sites were somewhat hastily recognised by the *Ramsar Bureau* as being of international importance. Early inventory work tended to be confined to readily accessible wetland sites. In 1980, IUCN compiled *A Directory of Wetlands of International Importance in the Western Palearctic*. This was followed by the *International Council for Bird Preservation's preliminary Inventory of Wetlands in East Asia*<sup>10</sup>. The *Directory of Asian Wetlands* prepared by Scott (1989) listed 52 sites in Pakistan, based on the work of the NCCW and other agencies. Scott and Poole (1989) subsequently compiled an overview of important wetlands in Asia that featured some of the resources in Pakistan. In 1987 *Wetlands International (WI)* initiated a mid-winter waterfowl census in the region and government staff from a range of institutions have participated in this survey series annually since that time. The *Pakistan NCS* (1992) included the protection of watersheds and water bodies as two of fourteen major programme areas for priority implementation. A report based on joint surveys by the NCCW and *Ramsar Bureau* in 1990 identified priorities for action including surveys, conservation measures, awareness raising, management and applied research. The report recommended rationalising the existing list of Ramsar sites. As a consequence, several were amalgamated into a complex, three existing sites were withdrawn from the list and two others added, bringing the total number of Ramsar sites in March 1996, to eight.

19. By 2003, the national and site level investment in wetlands was generally inadequate to meet the challenge of conserving globally important biodiversity. At the **national level**, the key significant drawback was the absence of an effective enabling environment that could encourage and sustain initiatives for biodiversity conservation. Key barriers to creating an enabling environment remained the lack of effective and integrated policies, the absence of decision-making tools and reliable information for wetlands conservation planning, technical deficiencies related to skills and equipment and the lack of general public awareness or political pressure that would favour wetlands conservation. Few comprehensive decision support systems or management tools were available for regional resource planning. The scope of the GIS facilities in the PFI and *Forest Management Centre* in Peshawar, was limited to forestry only and not organised to accept data on other forms of biodiversity or socio-economic conditions in wetlands and their buffer zones. Technical capacity in almost every aspect of wetlands management tended to be inadequate due to a lack of resources for scientific and specialised wetlands management training, appropriate equipment and exposure to international approaches to wetlands management. While Pakistan had produced a *Wetlands Action Plan* in 2000, the lack of a comprehensive *Wetlands Management Strategy* hindered policy formation, co-ordination and management of wetlands at a national scale. Additionally, options for financial sustainability had not been fully explored to enable the proliferation of long-term initiatives in biodiversity conservation. As a result, such initiatives tended to be donor-driven and short-lived.
20. At the **site level**, several of the above-mentioned inadequacies were also evident. Although all four of the designated *Demonstration Sites* fell within the jurisdiction of the provincial forestry and wildlife management agencies, actual activity was limited to partial enforcement of resource use regulations. Some community-based biodiversity management initiatives had been supported elsewhere by the appropriate agencies in NWFP and Sindh. These approaches had, however, not been applied in the four selected wetland sites. Biodiversity monitoring in these sites had also been inconsistent although the ZSD and WWF-P had undertaken some initiatives, particularly during the PDF(B) phase of the Project. Some short-term conservation initiatives had been implemented in recent years in MCWC, CIWC, and SRWC with the active involvement of WWF-P. Significant activities comprised of a programme for the rescue of Indus Dolphins (*Platanista minor*) stranded in irrigation canals during the dry season in CIWC and support for eco-tourism initiatives on the Indus River. In MCWC, initiatives had included the conservation of endangered Olive Ridley Turtles (*Lepidochelys olivacea*) and Green Turtles (*Chelonia mydas*) and the rehabilitation of mangroves near Jiwani. Monitoring of waterfowl, Punjab Urial (*Ovis vignei punjabiensis*) and Chinkara gazelle (*Gazelle bennetti*) had been the key focus of conservation activities in SRWC, although some limited community-based ventures, mainly related to environmental awareness, had also been implemented.
21. If the **2003 scenario** were to continue, it is projected that wetlands conservation in Pakistan would continue to encompass a series of essentially unrelated, short-term initiatives driven by donor support. In the absence of the measures proposed under the PWP, the existing national and site

level conservation efforts are likely to have little sustainable impact on the globally important wetlands and their associated biodiversity in Pakistan.

## **2.2 Public Awareness and Environmental Education**

22. Several provincial/territorial conservation agencies have produced a variety of posters and small-scale publications during the 1980s and 1990s to increase public awareness of waterfowl and wetlands. The *Sindh Wildlife Department* set up the first wetland information centres at Haleji Lake and Lugh Lake with donor support. Displays featuring relatively poorly mounted specimens of different waterfowl species have been created at some government-owned sites including Hazarganji-Chiltan National Park and the headquarters of the NWFP Wildlife Department. In early 2001, WWF-P established a sophisticated *Wetlands Information Centre* at Sandspit near Karachi with donor support. In an effort to sustain conservation initiatives around Jiwani, the Government of Balochistan, in April 2002, offered WWF-P premises for a community *Wetlands Information Centre*.

## **2.3 On-going Externally Assisted Projects**

23. Financial assistance for overall national environmental issues is being furnished through the UNDP financed *National Environmental Action Plan (NEAP) Support Programme*. This initiative supports a range of technical, institutional and regulatory areas within sub-programmes and acts as a baseline initiative that is further strengthened by the activities under the PWP.
24. Urban environmental issues are being supported through the UNDP-funded *Fuel Efficiency in Road Transport Sector Project*, *Kasur Tanneries Pollution Control Project* and *Institutional Strengthening for Implementation of the Montreal Protocol*. In addition to the World Bank supported *Montreal Protocol on Substances that Deplete the Ozone Layer*, these initiatives essentially address critical environmental issues related to urbanisation. Three key projects related specifically to biodiversity conservation focus on Pakistan's varied needs in the natural resource sector. These include: (a) the UNDP/GEF supported *Mountain Areas Conservancy Project (MACP)*; (b) the EU supported *Palas Conservation and Development Project (PCDP)*; and (c) the World Bank/GEF supported *Protected Areas Management Project (PAMP)*. These efforts generally integrate biodiversity conservation with community participation and introduce alternative livelihoods to ensure that *custodian communities* benefit from conservation initiatives. Some of the key lessons learned from these projects have included: (a) working within tribal norms and customs; (b) involving community level leadership; (c) generation of tangible economic benefits; and (d) the involvement of women in NRM decision-making. Sharing experience from these projects will also guide the PWP in fine-tuning project initiatives. Other conservation projects include the following medium-sized initiatives supported by UNDP: (a) *Conservation of Habitats and Species of Global Significance in Arid and Semi-arid Ecosystems in Balochistan*; (approved) (b) *Conservation of Balochistan Junipers through Community Participation*; (under development) (c) *Sustainable Management of Chilghoza Forest Ecosystem in Suleiman Mountain Range*; (under development) and (d) *Conservation of Representative PAs through Community-based Management* (under development). In 2003, the only initiative supporting wetlands conservation was the World Bank funded *National Drainage Programme (NDP)*. Under the NDP, selected artificial wetlands in Sindh and Punjab that had been impacted by recent development projects implemented by the World Bank were eligible to receive limited financial support for conservation and rehabilitation. To date, the NDP has invested a modest amount of project expenditure on the rehabilitation of selected wetlands. The wetlands in this category have, therefore, not been considered for site-based activities under the PWP.

## **3. Project Rationale**

### **3.1 Broad Development Goals**

25. As a developing country faced with political and economic instability, Pakistan has serious and varied economic problems. A key development challenge for the country is to promote economic growth and an equitable income distribution without degrading its natural resources. Despite its difficult economic conditions, Pakistan has striven to make environmental issues a priority. At the provincial, territorial and national level, the country is endeavouring to reduce poverty while conserving its natural resources. The PWP fits well within Pakistan's development goals by aiming to promote equitable sharing of natural resources, securing rights-of-access, especially for poor communities, diversifying livelihoods, improving the income earning potential of stakeholder communities and creating incentives for sustainable wetlands management. The Project will advance the GoP's recent initiatives for devolution of power to provincial and local levels by developing the capacity and

wetlands management skills of provincial institutions and strengthening community-based organisations.

### 3.2 Country Driven-ness

26. Pakistan has demonstrated its fundamental commitment to biodiversity conservation in general and wetlands conservation in particular through its support for appropriate international conventions. The adoption of a *Wetlands Action Plan* in 2000 further illustrates the GoP's recognition of the importance of wetlands and the need to find sustainable solutions for their conservation. Additionally, the GoP's support for wetlands conservation is evident from the contribution provided to the PWP during the PDF (B) phase. This included active participation in project formulation, involvement in field surveys and the facilitation of site selection. The pledged involvement of government agencies personnel and facilities during the implementation phase of the Project will further bolster the GoP's capacity and support for wetlands conservation. The GoP agencies involved in Project formulation have committed to sustainable institutional backing for wetlands conservation. The recent initiatives by GoP facilitating the devolution of power to district and tehsil level provide a strengthened context for implementation of such initiatives at the site level.

### 3.3 Global Environmental Objectives

27. Pakistan's wetlands support a wide spectrum of globally important biodiversity that merits support from the international community to ensure its sustainable conservation. A significant fraction of Pakistan's wetlands-dependent biodiversity is classified as endemic (**See: *Optional Annex 36***), threatened and vulnerable (**See: *Annex 15***) in internationally recognized evaluations such as IUCN's Red Data Book. Furthermore, international conventions such as Ramsar have recognised the role that Pakistan's wetlands play in maintaining and sustaining regional ecological processes that support globally important biodiversity such as bird migration routes and wintering grounds. While the country is making efforts to conserve its wetlands, it is constrained in this task by lack of access to physical and financial resources and immediate political and economic problems.
28. With support from the GEF, the proposed Project offers a proactive opportunity to create an enabling environment that is essential to conserve all of Pakistan's wetlands. Further, the Project initiatives in four *Demonstration Sites* provide a much-needed opportunity for the application of proven conservation methods and development of innovative regionally appropriate and sustainable approaches to address site-specific issues. Lessons generated within the Project will be relevant for ongoing wetlands conservation initiatives both within and outside Pakistan for evaluation and application to similar efforts in other regions and countries. Significant features of replicability are expected to include the approaches developed to integrate communities in wetlands management, providing alternate livelihoods to wetlands-dependent vulnerable groups and developing mechanisms for financial sustainability in a "resource strained" economy. Such issues confront wetlands conservation in other countries as well and the success of measures implemented under the PWP will provide useful guidance to the international community.

### 3.4 Immediate Objectives and Project Strategy

29. The purpose of this Project is to conserve globally important biodiversity in Pakistan without exacerbating poverty. After an analysis of the threats and root causes identified during the PDF (B) phase, the proposed Project has been developed around two inter-related *Immediate Objectives* and ten *Outputs*. These *Immediate Objectives* and their associated *Outputs* are described below.
30. **Immediate Objective 1 – Enabling Environment for Wetlands Conservation:** To create and maintain an enabling environment for effective and sustainable conservation of natural wetlands at federal, provincial/territorial, and local levels: This objective focuses on a range of *Outputs (1-6)* that will enhance the capacity of government and partner agencies to implement a comprehensive *National Wetlands Management Strategy*, strengthen institutional and individual capacity at the national, provincial and local levels for wetlands management, increase public awareness and understanding of wetlands and their values, and catalyse public and private measures and commitments to secure sustainability of wetlands.
31. **Immediate Objective 2 - Conservation of Wetlands Biodiversity at Demonstration sites:** To implement sustainable wetlands conservation at four representative sites that will serve as replicable models for subsequent nationwide wetlands conservation initiatives. This objective focuses on several *Outputs (7-10)* whereby four *Demonstration Sites* will each develop and implement a long-

term sustainable, management plan for the conservation of resources within each of four wetlands complexes, relying on strengthened local coordination and supported by innovative and replicable public/private and community-driven initiatives.

32. A key feature of these *Demonstration Sites* management plans will be the establishment of *Wetlands Conservancies* in which wetlands resources will be managed by stakeholder communities in partnership with the relevant government agencies. Important phases in the implementation of each demonstration site will be: (a) the establishment of a site co-ordination and consultative mechanism; (b) the implementation of a range of *bridging* activities (c) the development of a long-term management plan for the envisaged conservancy including social mobilisation, capacity building, development of alternate or diversified livelihoods and conservancy design; (d) the development and implementation of a financial plan for the long-term sustainability of all components of the conservancy; and (e) the preparation of a strategy for the expansion and replication of the initiative within the general ecoregion that it represents.

#### 4. Project Objectives, Outputs and Expected Results

**Output 1: Sustainable institutions are established to provide national level coordination for the conservation of wetlands biodiversity in Pakistan and to promote the dissemination of lessons learned, especially from Project *Demonstration Sites*.**

33. **Output 1.1: A Project Coordinating Mechanism and Management Unit are established as interim project management mechanisms leading to the establishment of permanent federal government wetlands conservation entities.**
34. **Baseline Situation:** In 2003 a range of agencies were concerned with wetlands conservation in Pakistan, each with varying capacities and influence over a range of conservation related resources and functions. An entity with the capacity for integrating these varying functions in addition to providing and facilitating the technical, managerial and other aspects of wetlands conservation is essential to ensure the effective implementation of the Project and to provide inter-agency coordination. This entity will also play a vital role in inter-agency co-ordination and the building of appropriate capacity within government and other agencies for mainstreaming wetlands conservation in national development initiatives.
35. **Implementation:** The PWP will establish its headquarters in the form of a *National Project Steering Committee* (PSC) and *Project Management Unit* (PMU) based in Islamabad, under the auspices of the MoE's NCCW. The PMU will be the organisational nucleus of the Project and will be staffed with governmental personnel seconded from relevant departments. Specific technical support positions will be filled by specialists who will transfer skills and build the capacity of governmental and partner agencies during the course of the Project. The PSC will provide overall guidance to the Project.
36. Having oversight of the entire Project, the PMU will be in a unique position to evaluate the success and appropriateness of wetlands conservation measures developed and implemented at the *Demonstration Sites*. It will, therefore, also undertake the responsibility for compiling case studies and describing techniques for replication elsewhere. This will be achieved by ensuring that lessons learned in the *Demonstration Sites* are rapidly assimilated and integrated into wetlands management policy (*Output 3*), project training courses (*Output 4*) and public awareness programmes (*Output 5*).
37. By Project Year 5, it is anticipated that an institutional framework for wetlands conservation will have been established within the NCCW in line with the *National Wetlands Conservation Strategy* (*Output 3*). This agency will have improved institutional capacity for wetlands management, access to enhanced management tools and a *decision support system* underpinned by the Wetlands GIS (*Output 2*). This will enable the new government entity to assume full responsibility for the coordination of national wetlands management initiatives. If approved by the PSC, the accountability for the supervision of the final two years of the Project will pass from the PSC and the PMU to the new federal government entity which may consist of a *National Wetlands Management Council* and a *Secretariat*.
38. **Output 1.2: A comprehensive inventory of equipment is acquired, effectively deployed, maintained and regularly upgraded for the duration of the Project.**
39. **Baseline Situation:** By world standards, technological capacity in the field of natural resource management in Pakistan is extremely low. In reality, the wildlife conservation agencies have been under-funded since their inception and have seldom, if ever, had "the tools to do the job". Basic

resources such as radio communication, access to maps, aerial and satellite photography, the use of relatively sophisticated boats and aircraft or specialised equipment such as SCUBA or fire-fighting apparatus have been deployed by most wildlife managers and researchers elsewhere for decades but these aids have seldom been available to any significant extent in Pakistan.

40. **Implementation:** A central PWP *Technical and Equipment Resource Centre* (TREC) will be set up at a location convenient to the PMU and NCCW. The TREC will be a secure facility that will be capable of housing the entire inventory of project equipment plus the staff required for its management and maintenance. Equipment will be supplied for various project activities as required for approved components of the PWP, with the sanction of the Project's *National Project Director* (NPD). It is anticipated that the need for this centralised equipment resource will diminish by the end of the Project to the point where it may be discontinued. This being the case, the GoP will, during the terminal phase of the Project in consultation with the UNDP, decide where and how the Project's equipment assets will be deployed or otherwise transferred. This will be done according to the UNDP Pakistan's standard operating procedures as set out in UNDP's *Project Cycle Operation Manual*.
41. **Output 1.3: Training courses for users of specialised equipment are developed and presented.**
42. **Baseline Situation:** Fieldwork in several of the Project *Demonstration Sites* and in many of the areas where wetlands surveys are to be conducted requires the use of 4x4s under extremely hazardous conditions. In these circumstances improper operation of vehicles may result in unnecessary losses of time, damage to equipment and injuries to staff.
43. A wide range of traditional small water craft are used in Pakistan. Most are based on centuries-old designs that have been upgraded, in some cases, to accept propulsion units that are usually marinised diesel water pump or truck engines. Conventional modern outboard motors are uncommon, as are hulls constructed from glass fibre or metal. Skilled operators for such modern craft are also in short supply.
44. **Implementation:** In collaboration with vehicle manufacturers, a specialised 4x4 drivers training course will be designed and presented by a trained instructor. The PWP will also design a comprehensive short course in small boat handling in collaboration with the Pakistan Navy and, in this way, provide training for all PWP boat operators. The same courses may be modified by the *Project's Training and Capacity Building Programme* and presented to community-based vehicle and boat operators wishing to upgrade their safety standards for ecotourism ventures.

**Output 2 Planning and land-use decision-making of wetlands conservation agencies at all levels is enhanced through the provision of comprehensive, current wetlands information, decision support systems and tools utilising spatial and other data from the Wetlands GIS Database.**

45. **Output 2.1: A Wetlands Survey Programme Section (WSPS) is set up within the PMU under the overall direction of the NCCW.**
46. **Baseline Situation:** The Project's envisaged WSPS involves the recruitment of a broad range of specialists to carry out an integrated series of nation-wide wetlands surveys. Using specialised services and equipment, survey teams will consist of staff from participating government agencies, NGOs, local communities and the private sector.
47. **Implementation:** A core WSPS will be established under the leadership of a technically qualified and experienced co-ordinator. The *Co-ordinator, Survey Programme* will design a broad, long-term survey programme with quarterly work plans which, with the accompanying budget, will be reviewed by the NPD before approval and execution.
48. **Output 2.2: A national wetlands survey programme is designed and implemented. Activities will include but not limited to the following:**
  - (a) the determination of accurate, geo-referenced polygons for the boundaries of all significant wetlands greater than 10 ha in extent, their associated buffer zones and catchment areas;
  - (b) a complete investigation by analysis of satellite images of the geographic occurrence and extent of alpine wetlands in areas above 3,500 m in Pakistan;
  - (c) the development of standard, repeatable population survey programmes, such as Distance Version 4, for all key wetlands vertebrates, especially those that are reliable, responsive, indicators of wetlands environmental health;
  - (d) the development and implementation of an appropriate water quality monitoring programme for selected

wetlands sites; (e) the design and implementation of a national programme to co-ordinate provincial/territorial regional surveys of endangered freshwater and marine reptiles, resident and migratory waterfowl, and freshwater and marine cetaceans; (f) the development of indicators and mapping of socio-economic information including demography, settlement, livelihoods and natural resource-use and (g) the identification of wetlands resources appropriate for the implementation of conservation measures developed in the Project *Demonstration Sites*.

49. **Baseline Situation:** Principally as a consequence of technical and financial constraints, wetlands surveys by government and private conservation agencies in Pakistan are, at best, sporadic. They consist of irregular counts and estimates of the more significant species in selected, easily accessible wetlands. Little effort is made to co-ordinate survey work between various agencies and provinces, even in the case of endangered species such as the Indus River dolphin. As a consequence of these realities, there is limited ability to detect and respond with any level of sophistication to positive or negative small or large-scale trends in wetland environments.
50. **Implementation:** The basic approach to this component will be to close gaps in the knowledge of the geographic position and quality of wetlands in the remoter areas of the country such as the western deserts of Balochistan and the alpine highlands. A comprehensive, on-going programme of exploratory surveys of uncharted wetlands will be launched in order to enhance baseline information. As jurisdictional and land tenure issues are often at the root of inappropriate use of wetlands, a concerted effort will be made to fix the seasonal and permanent boundaries of significant wetlands and, if appropriate, the associated catchment areas. This will be supplemented by regular seasonal biological and water quality surveys of those wetlands for which basic cadastral information exists. It is anticipated that, by the end of the Project, the annual survey programme will be recognised as a vital component of wetlands management and that government financial support for the agencies involved will be restored to a level that is adequate to sustain the programme. Increased awareness, both in the public and private sector, of the importance of wetlands conservation is also likely to mitigate in favour of improved financial support of the survey programme (*Output 5*).
51. **Output 2.3: The Pakistan Wetlands Geographic Information System (W-GIS) Database is enhanced and deployed to conservation agencies.**
52. **Baseline Situation:** Prior to the implementation of the PDF (B) Phase of the PWP, almost all recorded, retrievable information on wetlands in Pakistan was in the form of unpublished departmental and project reports, a superficial list attached to the draft *Wetlands Action Plan* (2001) and the details recorded in the *Directory of Asian Wetlands* (1989). These data sets range in complexity from information on easily accessible wetlands in south central Sindh and in isolated sections of the lower Indus Basin to superficial coverage in the more remote northern alpine areas of the country. Little data is available on associated socio-economic conditions, human population and livestock densities. The general format of these data sets does not facilitate cross comparisons with important parameters such as income levels, poverty indices, human or livestock densities, etc., all of which are significant descriptors of anthropogenic influences on wetlands.
53. **Implementation:** This component of the Project will consist of the following steps: (a) alignment of *Pakistan's Wetlands GIS (W-GIS)* with the *Asia Wetlands GIS*, once it is complete, in order to facilitate data exchange, comparison, and ease of updating; (b) installation of a full-scale updated version of the W-GIS in the offices of the MoE's NCCW during Project Year 1. A Project technical advisor will be seconded to the NCCW staff for the duration of the Project to maintain, update and facilitate the use of this resource and to train a GoP counterpart to independently operate the Database; (c) provision of working copies of the W-GIS to all six provincial and territorial government conservation agencies with a comprehensive supporting package of computer hardware and software; (d) provision of copies of the W-GIS to key agencies involved in wetlands surveys and biodiversity inventory work; (e) revision of the W-GIS by Project specialists on behalf of the NCCW and various conservation agencies and (f) provision of training material on GIS operation and application in decision-making as well as the training courses in Output 4.

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**Output 3: A National Wetlands Conservation Strategy (NWCS) is developed, officially adopted and implemented at federal, provincial/territorial and community level.**

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54. **Output 3.1: A detailed contract for the formulation of a National Wetlands Conservation Strategy is developed and awarded.**

55. **Baseline Situation:** By June, 2003, the most advanced policy document dealing with wetlands conservation in Pakistan was the *National Wetlands Action Plan*. This document serves a useful interim role but is inadequate for comprehensive execution.
56. **Implementation:** An agency with suitable intra-governmental experience and proficiency in the formulation of conservation strategies will be offered a contract to develop the NWCS in close collaboration with relevant federal and provincial/territorial government agencies.
57. **Output 3.2: NWCS policy development phase is implemented.**
58. The document will feature but not necessarily be confined to the following issues: (a) promoting and improving public awareness of freshwater and marine wetlands conservation issues and the principles of sustainable use; (b) ensuring compliance with international commitments in the form of treaties and conventions; (c) developing co-operation across international boundaries for the management of shared watersheds; (d) improving governance and the effectiveness of public and private institutions engaged directly or indirectly in wetlands conservation with special attention to the rationalisation and streamlining of government policies and co-ordination and communication among agencies; (e) enhancing environmental education initiatives with emphasis on wetlands conservation; (f) mitigating or removing acute threats to the integrity of significant wetlands; (g) fostering sustainable utilisation of wetlands resources with special attention to the mitigation of poverty and encouraging the involvement of communities and NGOs; (h) protecting the rights of access of rural communities to specific wetlands resources and defining the role to be played by such communities in the participatory management of natural wetlands; (i) conserving cultural heritage sites, customs and practices associated with wetlands; (j) promoting the accumulation of accurate inventory data and information about wetlands through surveys and monitoring; and (k) the assessment of current policies concerning closely related sectors such as water, agriculture, forestry and land management to ensure that they are compatible with the sustainable use of wetlands.
59. **Baseline Situation:** No dedicated *National Wetlands Conservation Strategy* has been developed but a *Draft Action Plan* was adopted by the MoE in 2000. The protection of watersheds and water bodies has been identified in the NCS as a high priority no independent strategy has been proposed for conserving wetlands.
60. **Implementation:** The formulation of the *National Wetlands Conservation Strategy* will follow the basic guidelines provided by the Ramsar Bureau (2000). These will be further adapted to Pakistan's conditions in terms of the lessons learned during the formulation of the National Conservation Strategy (NCS), *Sarhad Conservation Strategy*, *Balochistan Conservation Strategy* and recently, the *Northern Areas Conservation Strategy*.
61. **Output 3.3: The formulated NWCS is officially adopted at federal, provincial/territorial and community level.**
62. **Implementation:** After formulation, the policy adoption and implementation phase will take place in collaboration with federal cabinet.

**Output 4 Technical competence of government agencies and CBO conservation staff is enhanced through comprehensive training and capacity building programmes.**

63. **Output 4.1: A Training and Capacity Building Section (TCBS) is established within the PMU.**
64. **Implementation:** A locally recruited, technically qualified and experienced specialists will be engaged to serve as *Co-ordinator* of the *Capacity-building and Training Programme*. The coordinator will assemble a team of specialists and prepare a long-term training programme for approval by the NPD. The training plan and all initiatives aimed at capacity-building will be screened to ensure that they develop synergy with training initiatives in other major projects. At the provincial level, for instance, efforts to build capacity within the relevant agencies in Balochistan will coordinate activities with the PAMP. A similar approach will be followed in NWFP in conjunction with the MACP to ensure cost effectiveness and maintain consistency of effort. An important function of the TCBS will be to integrate lessons learned from the Project's Demonstration sites into their programmes to facilitate rapid replication and proliferation of effective wetlands conservation measures.
65. **Output 4.2: Post-graduate university course in wetlands management is established.**
66. **Baseline Situation:** By mid 2003, none of Pakistan's tertiary education institutions offered any undergraduate, postgraduate or general training in wetlands management. Most professional staff

that are recruited for wildlife management purposes, therefore, tend to be graduates from other disciplines such as forestry, agriculture, botany, zoology or biology.

67. **Implementation:** A comprehensive *curriculum* for a one-year post-graduate course in wetlands management will be designed in close consultation with the *PWP Academic Advisory Committee*. An appropriate university or institution will be selected for the presentation of the course, which will be subsidised by the PWP for an initial period of three years.

**Output 4.3: Pre-service and in-service public service training for GoP bureaucrats is presented.**

68. **Baseline Situation:** Governance in Pakistan is implemented at federal and provincial/territorial level by a core of professional bureaucrats, who receive their professional training from either the *Civil Services Academy*, Lahore or *National Institute of Public Administration*, Lahore. A review of the course *curricula* of these institutions revealed that little or no training is provided in NRM and issues such as the conservation of wetlands go entirely unmentioned. Consequently, key decision-makers within the government service tend to learn about issues like NRM by experience, alone.

69. **Implementation:** NRM training modules with special reference to wetlands will be designed for each of the national bureaucrat training institutions in consultation with their academic staff and the *PWP Academic Advisory Committee*. Appropriate reference material supporting the two modules will be developed, printed and supplied free of charge to course participants for the duration of the PWP.

70. **Output 4.4: NRM and wetlands training modules for military leader group are presented.**

71. **Baseline Situation:** Pakistan has been under the control of military governments for about half of its 55 year existence. A superficial review of the training that is provided to pre-service and in-service military officers revealed that the courses do not include NRM at any level. This has a direct impact on NRM decision-making in government hierarchies during periods of military rule. It also affects the conservation of a vast portion of the country that is, for strategic reasons, permanently under the control of military staff.

72. **Implementation:** An extract will be made of appropriate components of *Outputs 4.2, 4.3 and 4.6 – 4.8* and adapted for inclusion in *officers' training courses*. Supporting notes, *aide memoires* and instructional material will be produced and distributed in the programme. The PWP's TCBS may also provide training for selected military instructors to enable them to present the NRM course material.

73. **Output 4.5: Directorate level in-service training courses for conservation agencies are presented.**

74. **Baseline Situation:** Majority of the staff in Pakistan's wildlife conservation agencies are trained in forestry. This situation is counterproductive in the context of wetlands management. A practical short-term solution to the problem is to provide opportunities for senior staff to attend "conversion courses" in wildlife management with special reference to wetlands.

75. **Implementation:** The TCBS will develop and present a series of interrelated, comprehensive training modules on wetlands management. The individual courses will be repeated at least twice in each annual cycle. Where possible, local case studies will be used to illustrate the basic principles concerned in order to increase the relevance of the course material. Provision will also be made for the possible participation of senior professional staff in training opportunities that are offered abroad by international organisations with expertise on wetlands (*Output 4.9*).

76. **Output 4.6: Professional field staff in-service field training courses are presented.**

77. **Baseline Situation:** The general lack of proper training in wildlife conservation and, more specifically, wetlands management in Pakistan also results in an inadequate level of capacity among field staff to carry out field surveys, monitor biodiversity and implement a range of specialised wetlands management interventions.

78. **Implementation:** The TCBS will develop an appropriate series of short, in-service courses for professional level field staff in conjunction with specialists from *Wetlands International's training service* and other international agencies. These courses will be presented at a minimum frequency of twice *per annum*. Based on feedback received during the Project, the course content will be revised and upgraded to improve its effectiveness. Additional courses, if required, may be introduced to the programme at the discretion of the PSC.

79. **Output 4.7: Proficiency courses for non-professional field staff are presented.**



80. **Baseline Situation:** As a consequence of socio-economic environment in Pakistan, it is rare to encounter professional level wildlife conservation staff who are actually resident in or adjacent to PAs. The day-to-day management of the PAs is, therefore, routinely left to the resident junior non-professional staff such as wildlife guards, game watchers, etc. Because of budget constraints and limited technical capacity, these non-professional staff members receive very little proficiency training during their careers. The general standard of their service is, consequently, poor by comparison with similar conservation agency staff in other countries.
81. **Implementation:** Comprehensive proficiency courses based on the type of training given to wildlife rangers in East and southern Africa will be provided. Training camps will be set up in or near to a suitable PA and course participants will be trained in aspects such as discipline, law enforcement, public safety, weapons handling, wildlife surveys, fence construction, radio communications, fire-fighting, environmental interpretation and provision of tourism guide facilities, etc.
82. **Output 4.8: Custom-designed courses for CBOs are presented.**
83. **Baseline Situation:** The Project anticipates the involvement of CBOs and, especially *Village Conservation Committees* (VCCs) in the implementation of management plans for the four *Demonstration Sites* and the subsequent replication of wetlands conservation initiatives elsewhere. The potential for this contribution extends to a range of practical measures such as conducting censuses of key species, control of exotic *biota*, rehabilitation of threatened *biota* and habitats such as mangroves, law enforcement etc.
84. **Implementation:** As this component of the Project is dependent upon the mobilisation of *custodian communities*, it cannot be designed in advance. The envisaged approach is to periodically perform a *capacity-building needs assessment* for each demonstration site, develop a site specific *capacity-building strategy* on the basis of identified needs, secure endorsement of the NPD for the strategy and the associated expenditure and implement the strategy. These steps will necessitate close collaboration between each specific demonstration site management team and the Project's national capacity-building team.
85. **Output 4.9: International in-service training courses for selected staff are arranged.**
86. **Baseline Situation:** With no specific institution offering academic training in wetlands management or wildlife management in Pakistan, most professional staff engaged in conservation of wetlands resources have no specialist training for the work at hand.
87. **Implementation:** The Manager of TCBS will carefully monitor the availability of short 3- 8 week, international courses relating to wetlands management and monitoring. A sub-committee of the PSC will, on a quarterly basis, review nominations made by government wildlife conservation agencies, the PSC, the NPD or the CTA and approve the participation of highly motivated conservation officers in appropriate international training sessions. Professional staff from the private sector may also be considered but will be required to enter into a contract binding them to an appropriate binding period of continued service with their parent organisations after completion of the course.
88. **Output 4.10: A comprehensive manual for conservation and management of wetlands in Pakistan is published.**
89. **Baseline Situation:** An important goal of the Project is to facilitate replication of effective wetlands management practices but no comprehensive guidebook or manual for the management of wetlands exists in Pakistan or the adjacent regions. Many of the techniques that will be developed, e.g. breeding of endangered cranes, or those that have already been implemented in Pakistan, e.g. the methods used to survey the Indus Dolphin, are relatively unique. It is, therefore, anticipated that the publication of such techniques in a user-friendly manual would substantially enhance nationwide wetlands management capacity and would serve as a useful tool for conservation practitioners in the public and private sector.
90. **Implementation:** The material that is prepared for the training courses (**See: Outputs 4.2 – 4.8**) and the practical lessons learned during the development and application of management plans for the four *Project Demonstration Sites* will be used to form the basis of a wetlands management techniques manual. This publication will be released in both conventional printed form and will also be made available on the wetlands website that will be developed as part of the Project (**See: Output 5.10**). Partners in this initiative are likely to be the PFI and the *Punjab Wildlife Research Institute*.

**Output 5: A nation-wide wetlands awareness campaign is designed and implemented.**

91. **Output 5.1: A Communications and Awareness Section is established within the PMU.**
92. **Implementation:** A locally recruited, technically qualified and appropriately experienced specialist will be engaged to serve as *Co-ordinator* of the *Communications and Awareness Programme*. The coordinator will assemble a team of specialists and will prepare a long-term programme for approval by the NPD. Quarterly work plans and budgets will be submitted for review prior to implementation.
93. **Output 5.2: National public awareness and opinion surveys are conducted.**
94. **Baseline Situation:** The level of awareness for wetlands issues in Pakistan is generally very low. Reduced awareness levels were also repeatedly cited as a root cause of conservation problems during the *consultative phase* of the PDF (B).
95. **Implementation:** This survey, components of which will be repeated at least twice during the Project period, will be aimed at accumulating qualitative and quantitative information about public awareness, at all levels, concerning wetlands issues and public opinion in respect of the need for proactive freshwater and wetlands conservation issues.
96. **Output 5.3: Communications and awareness building strategy is developed, approved and implemented.**
97. **Baseline Situation:** The information on public awareness acquired during the PDF (B) phase of the Project was insufficient to serve as a basis for the development of an advanced communications and awareness strategy. *Output 5.2* is designed to provide such baseline information that will facilitate the development of a well-targeted and balanced strategy.
98. **Implementation:** Capitalising on the experience gained in the MACP, the PWP *Co-ordinator*, *Communications and Awareness* will formulate a strategy and submit it to the NPD for approval with a schedule of estimated costs. The components of the strategy will include but not be confined to *Outputs 5.4 – 5.10*.
99. **Output 5.4: A wetlands communication network is established.**
100. **Baseline Situation:** Recent advances in information technology have introduced a modicum of Internet connectivity to many parts of Pakistan. It may be safely assumed that this trend toward enhanced cyber communications will improve. In these circumstances, the creation and maintenance of a web-based wetlands communication network would be a useful communications tool.
101. **Implementation:** The basic network of agencies and individuals established during the PDF (B)'s *consultative phase* will be enlarged upon and amalgamated with information from the *Donor Forum* that has been established for the Project. Additions to the network will also be recruited through hyperlinks to the Federal Government's GEF website ([www.gefpak.gov.pk](http://www.gefpak.gov.pk)) and WWF Pakistan's website ([www.wwfpak.org](http://www.wwfpak.org)), among others.
102. **Output 5.5: A primary schools outreach programme is designed and implemented.**
103. **Baseline Situation:** A superficial review of classroom materials available in a cross-section of primary schools that were encountered during the survey component of the PDF (B) Project and WWF-P school visits revealed an almost complete dearth of indigenous natural resource material illustrating indigenous biodiversity.
104. **Implementation:** The output will, in an innovative way, identify areas within existing, primary level subject *curricula* where environmental principles and awareness of wetlands may be introduced without formal changes in the overall *curricula*. Appropriate material will be introduced indirectly by the preparation of appropriate teaching aids and materials, within the context of the existing *curricula*, that will then be disseminated to the teachers of selected schools. This initiative may be extended to secondary schools if deemed appropriate by the PSC. Secondary components of the output will include the preparation of a short course in wetlands awareness for primary school teachers of all subjects and the production of a companion booklet for primary teachers with the working title: "Teaching Environmental Awareness in Primary Schools".
- Output 5.6: A religious leaders outreach programme is implemented.**
105. **Baseline Situation:** Despite the reality that in excess of 97% of the people of Pakistan are Muslims, little has been done to integrate Islamic religious philosophy and conservation. A WWF-P project in

Chitral District in 1990 significantly changed attitudes among the local public to the hunting of waterfowl by working through community religious leaders. The MACP also successfully established positive links with religious scholars at an early stage in that project.

106. **Implementation:** The Project will establish contacts with the *Ulema* (religious scholars) to facilitate environmental education in religious schools. It will also produce material for use in sermons based on quotes from the *Holy Qur'an* and *Hadith* and improve the level of environmental awareness of religious teachers.
107. **Output 5.7: A comprehensive mass media outreach programme is implemented.**
108. **Baseline Situation:** The increasing reach of mass media in remote areas of Pakistan presents a valuable opportunity to extend environmental awareness to vast sections of the population.
109. **Implementation:** The Project's national awareness campaign will capitalise on appropriate opportunities to use the local and national press, radio broadcasts (VHF) and television to disseminate information about wetlands and generally raise public awareness for wetlands issues. The output will include the preparation of a 55-minute documentary film on wetlands. This will be dubbed into key languages such as Pashtu, Brahvi, Saraiki and Sindhi for use in *ad hoc* extension education programmes and regional TV broadcasts.
110. **Output 5.8: A sports hunters outreach programme is designed and implemented.**
111. **Baseline Situation:** Modern sport hunters in Pakistan tend to come from the upper of echelons society and are inherently influential but difficult to control. The disparity between the social standing of rural wildlife guards from relatively impoverished villages and the elite, often wealthy, sports hunters is usually sufficient to render effective law enforcement improbable. As enforcement alone is inadequate to change attitudes, self-regulation by the hunters seems to be one of the few viable socially acceptable options.
112. **Implementation:** Since ineffectively regulated sport hunting of waterfowl has consistently emerged as a cause of biodiversity loss in wetlands, the Project will endeavour to organise the waterfowl hunters of the country, increase their level of awareness for the problems that exist and encourage them to regulate their activities. Sporting firearms and ammunition traders and target shooting clubs will be used as an initial avenue of contact with waterfowl hunters.
113. **Output 5.9: A public awareness programme based on street theatre performances is implemented.**
114. **Baseline Situation:** A pilot project supported by the *GEF/UNDP Small Grants Programme* demonstrated that traditional street theatre is an effective tool for awareness raising areas with low literacy rates. The project was carried out in the Saraiki language areas of the south central Punjab and was most successful in impoverished areas with low literacy rates.
115. **Implementation:** The pilot project's lessons will be incorporated and will be expanded to upon to include all significant components of the Indus River Dolphin home range, especially northern Sindh between Guddu and Sukkur irrigation barrages. The feasibility of using a similar approach for awareness raising on wetlands issues will be investigated for other suitable project sites.
116. **Output 5.10: A Pakistan wetlands website is commissioned and created.**
117. **Baseline Situation:** A recent government evaluation of the annual growth of Pakistan's PC-based Internet users indicates that it may be as high as 25% per annum<sup>11</sup>. Commercial Internet access providers are established in most areas that have landline or microwave telecommunications links.
118. **Implementation:** A well illustrated, interactive and effectively cross-linked website will be designed, launched on the World Wide Web and maintained for the duration of the Project. The language medium will be English but the possibility of providing hyperlinks to significant texts translated into Urdu will be investigated.
119. **Output 5.11: Wetland exhibits for information centres are designed and installed.**
120. **Baseline Situation:** A range of different agencies have developed wildlife and natural history exhibits in major cities of Pakistan. These include the *National Museum of Natural History* in Islamabad, the *WWF-P Wetlands Centre* in Karachi and the *Gilgit Conservation and Information Centre*. None, except, the *WWF-P Wetlands Centre*, focuses on wetlands or provides specific wetlands related information. Likewise, major towns and cities associated with the four selected

Project *Demonstration Sites* do not have any suitable exhibition of wetlands ecology that could be used as a teaching, training or awareness raising aid.

121. **Implementation:** If a series of wetlands teaching exhibits were to be produced for each of the major city centres, it is likely that they would share a common or generic component that might include as much as 75% of each exhibit. The PWP will facilitate the development of wetlands exhibits at a range of suitable venues in Pakistan's major cities and in the principal town centres associated with the selected *wetlands Demonstration Sites*. This will be a relatively economical exercise as it will involve the design and replication of up to eleven copies of each modular component. An estimated 25% of expenditure would be associated with 'customising' each centre in terms of local content.

**Output 6: Elements of long-term sustainability of wetlands conservation initiatives are developed and adopted.**

122. **Output 6.1: A Fundraising and Financial Sustainability Section (FFSS) is established.**
123. **Implementation:** An internationally recruited, technically qualified and appropriately experienced person will be engaged to serve as *Co-ordinator* of the *Fundraising and Financial Sustainability Programme*. This person will work in close collaboration with the Project's Administration and Logistics Staff and will be based in the PMU.
124. **Output 6.2: Financial sustainability needs assessments are conducted.**
125. **Implementation:** The *Co-ordinator*, FFSS will perform comprehensive financial needs assessments of individual components of the Project's wetlands conservation initiatives as they emerge. In each case, the goal will be to achieve independent financial sustainability for the initiative in question. In situations where this proves to be impractical, targeted efforts to secure long-term donor funding for these components of the wetlands conservation programme will be launched.
126. The fundraiser's activities will be overseen by a *Financial Advisory Sub-committee* of the PSC that will approve and co-ordinate all methods of securing long-term financial stability for the PWP. Specifically, this committee will oversee activities such as the establishment of *trust funds* or similar financial instruments and the management of their ongoing financial performance.
127. **Output 6.3: Fund-raising options and initiatives are implemented.**
128. **Implementation:** The FFSS will design and implement an innovative fundraising campaign that will develop the potential of charismatic components of the PWP to support those conservation initiatives, which, though important, may have little or no capacity to be financially self sustaining in the long-term. A wide range of potential sources of financial support including national, international, private and public sector sources will be explored for long-term financial sustainability. Private sector mechanisms are expected to include but not be limited to development of a trust fund, promotional campaigns, private donations and corporate support. Support from bilateral and multilateral agencies, eco-tourism ventures and revenue through entry tickets will be some of the public sector mechanisms explored for financial sustainability. The exact nature of these financial mechanisms e.g. the type of trust fund to be established will be assessed and finalised with the active guidance of a *Financial Advisory Sub-Committee* of the PSC.

**Output 7: Wetlands biodiversity is sustainably conserved in the Makran Coastal Wetlands Complex (MCWC).**

129. **General Baseline Situation:** The MCWC lies on the Balochistan coast (See: Figure 1) where rugged conditions and poor communication hamper the efforts of the *Balochistan Forests and Wildlife Department* and other governmental agencies to manage natural resources. PA status has been extended to several parts of the Makran Coast, most significantly in the case of Hingol National Park that at 169,000 ha, is Pakistan's largest National Park. Two sites within the MCWC have been recognised by the Ramsar Bureau: *Astola Island* and *Jiwani Coastal Wetlands*. Both WWF-P and IUCN-P have mounted small-scale initiatives to conserve elements of coastal zone biodiversity on the Makran Coast. WWF-P initiated turtle and mangrove conservation programmes in Jiwani in 1998 and in 2002 negotiated financial support for a mangrove rehabilitation campaign extending westwards along the coast from Sonmiani Bay to Kalmut Khor and Jiwani.
130. **Human Habitation and Resource-use:** The MCWC is sparsely populated e.g. 9 people per km<sup>2</sup> for Gwadar District, and majority of the population is concentrated around the coastal towns of Jiwani

and Gwadar where fishing and other port-based activities are undertaken. Fishing is the principal activity. This is carried out by both traditional fishermen operating small diesel powered boats and by deep sea trawlers from the large scale national and international commercial fishing industry. Harmful fishing practices are rampant, such as the use of illegal nets and fishing during the spawning season. There is also a substantial by-catch of endangered marine species such as turtles and cetaceans. Coastal pollution from leakage of diesel boat fuel and oil further adds to the negative impact on wetlands. Other forms of resource dependence include fuel wood collection from mangroves and hunting for sport and subsistence purposes. A low literacy rate and cultural norms that restrict the social mobility of women hinder the participation of women in NRM regimes. Additionally, weak social indicators for the provision of health, sanitation services and access to drinking water exacerbate poverty and perpetuate dependence on natural resource based incomes.

131. **Output 7.1: Institutions are established to integrate wetland conservation into local and provincial land use planning in the MCWC.**
132. **Implementation:** After a six-month inception period during which a core *Site Management Team* (SMT) will be recruited and trained in respect of Project administration and the implementation of the *Outputs* that all four sites share in common, the *MCWC Field Office* will be set up, commissioned and an interim *Wetlands Management Committee* (WMC) will be constituted. In addition to implementing *Outputs 7.2 – 7.12*, the SMT will have the important responsibility of identifying and describing viable wetlands conservation and management initiatives that emerge in the MCWC but may be suitable for replication elsewhere. Detailed information on such measures will be shared with the PMU. By PY 5, the SMT and the WMC will be superseded by a permanent government or parastatal body created under the auspices of the provincial/territorial conservation agency.
133. **Output 7.2: MCWC site explored and assessed.**
134. **Implementation:** After receiving advanced training in the use of GPS receivers for geo-referencing field data and in accumulating and formatting information for the *Pakistan Wetlands GIS-database*, the *MCWC Site Manager* will personally oversee the compilation of the comprehensive cadastral data set for the complex. This will ensure that the senior elements in the SMT are familiar with the full extent of the Complex, in terms of the natural resources and the human inhabitants who are the potential stakeholders in the Project.
135. **Output 7.3: MCWC immediate action plan for conservation is implemented.**
136. **Implementation:** Components of this plan may include but will not be restricted to: (a) the control of feral dogs in the vicinity of Green Turtle (*Chelonia mydas*) and Olive Ridley Turtle (*Lepidochelys olivacea*) nesting sites in the MCWC; (b) the introduction of a used engine lubrication oil recovery and recycling service in the fishing boat anchorages of Jiwani, Pasni, Gawadar Bay and, if feasible, the smaller anchorages; (c) a programme to locate, remove and dispose of fragments of mono-filament gill netting dispersed in the inter-tidal zone along the coastline; (d) the control of domestic cats (*Felis domesticus*) and ship rats (*Rattus rattus*) on Astola Island; (e) the establishment of a *coral-safe anchorage* on the leeward side of Astola Island and on Astola Sea Mount; (f) a campaign to teach local fishermen how to effectively resuscitate marine turtles that have been recovered from fishing nets in a state of deep apnoea; and (g) an evaluation of traditional rights of access to wetlands resources and the implementation of appropriate short-term legal measures to protect these.
137. **Output 7.4: Communities are organised and mobilised into Village Conservation Committees (VCCs).**
138. **Baseline Situation:** During the PDF (B) Phase it was established that the communities of the Makran Coast are isolated and poorly organised in most respects.
139. **Implementation:** Following the model developed by MACP, conservation management in the MCWC will be achieved through an institutional framework for co-operative planning effected at the village level *through VCCs*. Community consultations with various resource users, socially influential people and vulnerable groups will be undertaken to explain the links between conservation and sustainable welfare of people. Agreements on resource use will be negotiated and community leaders will be co-opted to monitor these agreements together with the site-based staff of PWP and GoP. Links with alternative income generating programmes will also be developed.
140. **Output 7.5: A programme for alternate/diversified livelihoods is developed and implemented.**

141. **Baseline Situation:** The prime wetland resources of the MCWC are distributed over a c.120 km stretch of rugged desert coastline. The road reticulation in the region is poor and government control over the resources is understandably weak. Communities such as sea-going fishermen and graziers that use shoreline vegetation are highly mobile. Enforcing protection of biodiversity in one part of the complex is likely to simply displace the mobile user communities to another locality and thus defeating the objective of the exercise. The tenuous government control and dispersed nature of wetlands resources support the formation of self-administered, self-regulated wetlands conservancy in which the resources are adequately protected according to a prioritised zonation system and conserved with no net loss of livelihoods to the *custodian communities*.
142. **Implementation:** The MCWC site team will identify key wetlands resources along the coastline, including Astola Island and Astola Sea Mount and prepare an integrated plan for the formation of a wetlands conservancy in which the key components are adequately conserved and wetland biodiversity in the buffer zones is sustainably used by the resident communities.
143. **Output 7.6: A NRM capacity-building initiative for women is implemented..**
144. **Baseline Situation:** The socio-economic surveys performed during the PDF (B) Phase confirmed that many women in the vicinity of the conservancies provide sustenance to their families through management and use of natural resources. It was found that although they interact closely with natural resources, their contribution to NRM regimes is severely limited due to cultural and social norms severely inhibiting their participation in community decision-making.
145. **Implementation:** As the presence in public of women in many of the more remote areas of Pakistan is generally restricted under cultural and local interpretation of religious values, women are difficult to access as a group. The PWP will engage female social mobilisers to interact with the women in the *custodian communities* to improve their capacity and skills to sustainably use wetlands resources.
146. **Output 7.7: A MCWC Conservancy is officially proclaimed and established.**
147. **Baseline Situation:** The coastline of the MCWC and the offshore resources of Astola Island and Astola Seamount include a range of biodiversity hotspots. These include marine turtle and sea bird nesting sites, localised outcrops of coral, mangrove swamps and extensive salt marshes that are the wintering grounds of Palaearctic migrant birds. The human communities that exploit these resources are relatively mobile such as shoreline pastoralists or seagoing fishermen. The only viable proposition for wetland conservation in the long-term is the formation of a self-administered, self-regulated conservancy composed of the isolated communities that live in or close to the MCWC in concert with the Government of Balochistan conservation agencies.
148. **Implementation:** The PWP will evaluate the wetland sites that are dispersed through the length of the MCWC and integrate them into a matrix of buffer zones linked, if necessary, by corridors. The resident communities will be mobilised and empowered to protect the critical wetland resources on a seasonal and prioritised basis. This may necessitate withdrawing resource-use entirely from certain areas. There will, therefore, be a close relationship between the effectiveness of the envisaged conservancy and the successes of the alternate livelihood initiative described in *Output 7.5 and 7.6*.
149. **Output: 7.8: A MCWC eco-tourism promotion is plan implemented.**
150. **Baseline Situation:** Public access to the region has improved in recent years with the extension of the so-called *Coastal Highway* westwards from Sonmiani Bay. With the planned development of Gwadar as a modern seaport and the possible construction of a major highway leading to the north, accessibility to the coastal belt of Balochistan is likely to increase even further. These development projects are expected to open the region to domestic and international ecotourism.
151. **Implementation:** The MCWC Site Management Team will make an evaluation of the potential for various tourism activities in the Complex. As no viable market has been developed for such facilities, the PWP will design and promote a local ecotourism programme and provide training to communities in the necessary skills.

152. **Output 7.9: A Preliminary Oil Pollution Disaster Plan is developed.**
153. **Baseline situation:** Although units of the *Pakistan Navy* and *Marine Security Agency* are based at Gwadar, no specific equipment exists for the control or mitigation of oil slicks in the vicinity. In 1997 an extensive oil slick threatened the Makran Coast when an abandoned and fully laden tanker foundered inside Pakistan's territorial waters. Fuel tenders and oilers used to service the large commercial fishing trawlers also pose a constant threat of marine and coastal pollution.
154. **Implementation:** The SMT will investigate the availability of emergency oil slick containment systems and services in the sub-region, including the Persian Gulf, and develop a preliminary disaster action plan for implementation if an oil slick should threaten key marine wetland resources on the Makran Coast.
155. **Output 7.10: A bird-ringing programme is implemented.**
156. **Baseline Situation:** The migratory bird populations of the Western Makran Coast have not been studied in any detail and no ringing exercises or attempts to recover such birds elsewhere have been attempted. In the long-term, it may be counterproductive for extensive conservation measures to be applied to these migrant bird populations without any substantial evidence of where they come from or go to and what measures are or should be in place in those regions.
157. **Implementation:** The PWP will, carry out an annual bird-ringing programme at the MCWC for six successive years. Serious consideration will be given to including a programme of DNA sampling and analysis as part of the bird-ringing initiative in order to analyse the interrelationships of regional migratory bird populations.
158. **Output 7.11: A marine turtle tracking programme is implemented.**
159. **Baseline Situation:** Pakistan's efforts to conserve marine turtles and participate actively in international marine turtle research have been intermittently supported by international donor agencies. The *Sindh Wildlife Department* has, during the past two decades, tagged more than 5,000 adult female turtles at the Sandspit and Hawke's Bay nesting colonies in Karachi. The primary limitation on the turtle tracking initiative has been financial. The Argos® tracking transmitters which have proven to be the only effective form of telemetry for actively tracking marine turtles, are expensive and well beyond the financial means of the *Balochistan Forests and Wildlife Department*.
160. **Implementation:** In order to support the marine turtle nest protection programme that will become part of the MCWC's long-term management plan, it is proposed that an average of five turtles per year will be tagged over a period of five years and their movements within Pakistan's territorial waters and elsewhere monitored. As DNA sampling and analysis has been used elsewhere as a tool to investigate the interrelationships of marine turtle populations, appropriate tissue samples will be collected for this purpose.
161. **Output 7.12: A Marsh Crocodile (*Crocodylus palustris*) re-establishment programme is implemented.**
162. **Baseline Situation:** The general density of Marsh Crocodiles in the *Coastal Zone* of Balochistan has been substantially reduced in the past two decades due to hunting. Marsh Crocodiles have been successfully bred in captivity elsewhere in the sub-region and the breeding of similar species in developing countries, such as Zimbabwe, is well established.
163. **Implementation:** A Marsh Crocodile breeding programme will be established within the MCWC or at a locality convenient to it. The captive breeding programme will use eggs recovered from wild crocodile nests. In accordance with the norms of other similar programmes in Africa, Australia and Central America, a significant proportion of the hatchlings will be returned to the parent community once they have adequately matured.

**Output 8 Wetlands biodiversity is sustainably conserved in the Central Indus Wetlands Complex (CIWC).**

164. **General Baseline Situation:** The *Central Indus Wetlands Complex* (See: Figure 1) consists of a continuum of wetland resources along the main stem of the Indus River between the town of Chashma in the north and the city of Sukkur in the South. It includes braided and meandering river channels, islands, *dhands* or oxbow lakes and seasonally flooded depressions in the flood plain. The environment in which the Complex is embedded is a vast, gently sloping semi-arid plain ranging in elevation from 125 m in the south to 585 m in the north. The Complex, which is approximately 708 km long and varies in width from c. 9 – 23 km, occupies an area of about c. 9,700 km<sup>2</sup>.
165. **Human habitation and resource-use:** The CIWC is fairly densely populated with a high ratio of rural population and low industrial development. As a result, the socio-economic conditions in the region present a high level of poverty, income disparity and dependence on agriculture and natural resource based incomes. Farming, fishing and other natural resource-based occupations form major sources of livelihood for the poor. Credit facilities are limited, mainly consisting of private sources, and repayment rates can be as high as 25%. Irrigated farming is the main livelihood in the area. Cotton, wheat and vegetable are the main crops grown for the urban market. The level of agrochemical use in farming is steadily increasing. Livestock ownership mainly supports agricultural income in the region. Fishing, involves a large number of people in the region mainly under a contract system that generally exploits poor fishermen. Traditional fishing methods are still used involving hook and line and nets of various types and size. Harmful fishing practises such as agrochemical poisoning of fish are also now practised. Population pressures are high and majority of the population, especially female, has poor access to health and education.
166. **Output 8.1: Institutions are established to integrate wetland conservation into local and provincial land-use planning in the CIWC.**
167. **Implementation:** After a six-month inception period during which a core *Site Management Team* (SMT) will be recruited and trained in project administration and implementation of Outputs that all four sites share in common, the *CIWC Field Office* is set up, commissioned and an interim *Wetlands Management Committee* (WMC) is constituted. In addition to implementing *Outputs 7.2 – 7.12*, the SMT will have the important responsibility of identifying and describing viable wetlands conservation and management initiatives that emerge in the CIWC but may be suitable for replication elsewhere. Detailed information on such measures will be shared with the PMU. By PY 5, the SMT and the WMC will be superseded by a permanent government or parastatal body created under the auspices of the provincial/territorial conservation agency.
168. **Output 8.2: CIWC site is explored and assessed.**
169. **Implementation:** After receiving advanced training in the use of GPS receivers for geo-referencing field data and in accumulating and formatting information for the *Pakistan Wetlands GIS-database*, the *CIWC Site Manager* will personally oversee the compilation of a comprehensive cadastral data set for the complex. In view of the inherent instability of the riverine landforms, recent satellite images will be used extensively to plot the distribution of current river channels and islands. This will ensure that senior *Site Management Team members* are familiar with the full extent of the CIWC, both in terms of natural resources and human inhabitants who are stakeholders in the PWP.
170. **Output 8.3: CIWC immediate action plan for conservation is implemented.**
171. **Implementation:** The CIWC's SMT will make a rapid assessment of threats to the integrity of biodiversity in the CIWC and design and implement the plan after approval by the NPD. Components of this plan may include but will not be restricted to: (a) the control of illegal hunting of waterfowl in the PAs within the CIWC; (b) the control of illegal fishing practices in the Indus River and in adjacent *dhands*; (c) the control of illegal grazing of livestock within the PAs in the CIWC; (d) the introduction of composting toilet systems in the riverside villages in the complex; (e) re-commissioning of fish ladders at the major barrages; and (f) an evaluation of traditional rights of access to wetlands resources and the implementation of appropriate short-term legal measures to protect these.
172. **Output 8.4: CIWC communities are mobilised and organised into Village Conservation Committees (VCCs).**



173. **Baseline Situation:** During the PDF (B) Phase it was established that the communities living along the banks of the Indus River within the CIWC and the *Mohanna* or boat people on the river itself are poorly organised.
174. **Implementation:** Following the model developed by the MACP, conservation management in the CIWC will be achieved through an institutional framework for co-operative planning effected at the village/floating village level into VCCs. Workshops will be organised on the following themes: (a) sustainable benefit sharing of wetlands resources; (b) the existing government rules and regulations with specific reference to the conservation of wetlands resources and the need for self regulation in respect of sustainable use of national resources; and (c) zoning of the complex with a view to the establishment of PAs, limited use buffer zones and resource extraction areas.
175. **Output 8.5: A programme for alternate/diversified livelihoods is developed and implemented.**
176. **Baseline Situation:** Although the CIWC includes almost 600 km of the main stem of the Indus and spans two different ecological regions, the wetlands component is relatively homogenous in terms of the resources that it embodies. There is, therefore, relatively little latitude in the resource-use practices of the people that actually live on or in close proximity to the river. Where any form of livelihood threatens natural biodiversity and requires a measure of curtailment, few alternatives exist.
177. **Implementation:** The PWP will capitalise on lessons learned in a series of approximately ten TRAC-funded projects in the UNDP *Sustainable Livelihoods Programme*. The principal approach will be to empower people, especially women, by expanding their economic opportunities through sustainable wetlands resource utilisation, alternate skill development, diversification of income generation, employment and access to social services.
178. **Output 8.6: A NRM capacity-building initiative for women is implemented.**
179. **Baseline Situation:** The socio-economic surveys performed during the PDF (B) Phase confirmed that women living in the communities along the Indus River support their families by using natural resources such as *Typha* and *Tamarix* species to manufacture matting, baskets and ropes also to construct temporary shelters and semi-permanent housing for themselves and their livestock.
180. **Implementation:** The PWP will engage female social mobilisers to interact closely with women in the riverine communities to improve their capacity and skills for sustainable wetlands resource use.
181. **Output 8.7: A CIWC Conservancy is officially proclaimed and established.**
182. **Baseline Situation:** The distribution of PAs along the length of the Indus River between *Chashma Barrage* in the North and *Sukkur Barrage* in the South, is discontinuous and widely spread. Five PAs currently exist: the *Indus Dolphin Reserve* in Sindh, the *Taunsa* and *Chashma Wildlife Sanctuaries* in Punjab and the *Indus Game Reserve* and *Indus Waterfowl Refuge* of NWFP. Most of these wetlands sites are separated by distances of more than 100 km. Habitat fragmentation as a consequence of invasive agricultural practices and other forms of human encroachment have been identified as proximal causes of biodiversity loss.
183. **Implementation:** A series of sites with inherent potential for the conservation of wetlands biodiversity will be identified along the length of the river between Chashma and Sukkur. The Project will endeavour to upgrade conservation measures in these identified sites by incorporating them into a conservancy, where specified minimum standards that are conducive to biodiversity conservation are met. As this venture is likely to require reduced subsistence and commercial utilisation of wetland resources, it will, have to liaise closely with *Output 8.5 and 8.6* that focus on alternate livelihoods, sustainable use practices and income diversification.
184. **Output 8.8: A CIWC eco-tourism plan is implemented.**
185. **Baseline Situation:** The potential exists within the CIWC to generate alternate income and even livelihoods through eco-tourism for people who are wholly or partially dependent on wetland resources. Realising this potential, the *Punjab Department of Irrigation and Power Development* invited WWF-P to collaborate in the development of ecotourism facilities in the so-called 'pond areas' of the irrigation barrages and other headworks in the province.
186. **Implementation:** An evaluation will be made of the potential for developing low cost, environmentally friendly, tourism facilities such as picnicking and camping sites and other outdoor recreation activities. As no viable marketing system exists for such facilities, the PWP will develop and promote a local ecotourism programme and, to a modest extent, subsidise the creation of basic infrastructure in the form of small demonstration projects.

187. **Output 8.9: A River Pollution Disaster Plan is designed.**
188. **Baseline Situation:** The main stem of the Indus River is traversed by a series of major rail and road bridges and oil pipelines within the CIWC. This introduces the possibility of a petrochemical spill of considerable magnitude in the event of a road or rail accident or pipe burst. There is also a potential for rapid discharge of poisonous pollutants from industrial development on the banks of the river in cities such as Sukkur. Field surveys confirmed that no preparations exist for the containment or treatment of risks of this general nature.
189. **Implementation:** The SMT will make a petrochemical and pollution risk assessment and devise a basic plan to mitigate the effects of such an accident within the CIWC.
190. **Output 8.10: An enhanced income generation programme for fisher-folk is established.**
191. **Baseline Situation:** The level of poverty combined with lack of livelihood opportunities in the CIWC has resulted in a situation where people make excessive use of wetlands and their resources. Fisherfolk, in particular, are trapped in a spiral of over-fishing due to poverty and low rates for fish their catch. Other vulnerable social groups that are prone to making excessive use of wetlands vegetation are women, especially in the case of female-headed households, migrant and landless families. Lack of availability of credit to poor and vulnerable groups is a critical factor that has hindered livelihood enhancement and diversification in the region.
192. **Implementation:** The Project will undertake a detailed assessment of income generating and enhancing ventures that can be introduced to vulnerable groups. This will include community consultations and assessment of technical, financial, marketing and other solutions applicable to the communities. The interventions foreseen include small-scale and mainly home-based ventures that encourage women's participation e.g. poultry rearing, handicraft and embroidery development and creation of links with urban markets to obtain a better price for rural products. The solutions identified will be introduced to the vulnerable groups in conjunction with access to micro credit and rural development schemes operating in the CIWC and its vicinity.
193. **Output 8.11: An appropriate energy use programme is introduced to communities.**
194. **Baseline Situation:** Riverine forests in the CIWC are currently being rapidly felled to meet rural fuel and timber needs. Community forests, in particular, have degraded in the vicinity of Taunsa.
195. **Implementation:** A range of low technology, easily installed and maintained solutions for generating energy will be explored. These will be negotiated with local communities and the most appropriate technology for each community will be identified with community participation. Other technologies for reducing consumption of fuel wood such as fuel-efficient stoves will also be assessed and where possible, introduced. The communities will be encouraged to enter into a pact with project implementers to arrange voluntary restrictions on wood cutting in exchange of access to alternative fuel technologies.
196. **Output 8.12: Trapped Indus River Dolphins are translocated.**
197. **Baseline Situation:** A comprehensive survey of the surviving *Indus River Dolphin* population was undertaken in March/April, 2001, during the *PDF (B) Phase* of the Project. The exercise confirmed that the species now occurs as a metapopulation divided into six recognisable sub-populations, separated by irrigation barrages on the Indus River. While downstream movement through these barrages may possibly occur, upstream migration is regarded to be improbable. No genetic analyses have been performed but the low population densities between Jinnah Barrage and Taunsa Barrage suggest that inbreeding depression may be a potential problem.
198. **Implementation:** The Project will build on the existing partnership between the *Sindh Wildlife Department*, the *Lahore Zoo* and *WWF-P* to develop a translocation programme as an extension of the established dolphin rescue programme. Where possible, appropriate samples will be taken for DNA analysis during these translocation operations.
199. **Output 8.13: The potential for SONAR tracking of River Dolphins is investigated.**
200. **Baseline Situation:** The social structure, diurnal activity patterns and migratory habits of the Indus River Dolphin are poorly understood, principally because individual dolphins are difficult to identify in the few seconds when they surface to breathe. In surfacing, they do not usually expose their tail flukes and, as they have dorsal fins that are relatively small, it is not possible to identify a significant proportion of the population by means of natural markings.

201. **Implementation:** The PWP will engage a suitably qualified biologist to investigate the possibility that natural idiosyncratic sonar emissions could be used to identify and track individual dolphins within the species' current home range. This initiative has the potential to provide crucial information relating to the biology of the Indus River Dolphin and enhance conservation measures.
202. **Output 8.14: Comprehensive Indus Dolphin population surveys are conducted.**
203. **Baseline Situation:** The wildlife authorities in Sindh and Punjab have been monitoring different components of the surviving Indus River Dolphin population for decades but the survey programmes have suffered from a lack of financial support, technical capacity, and continuity of effort.
204. **Implementation:** The CIWC SMT will organise and implement an annual survey of the entire home range of the Indus River Dolphin for the duration of the Project.
205. **Output 8.15: A Gharial (*Gavialis gangeticus*) re-introduction programme is implemented.**
206. **Baseline Situation:** Gharial historically occurred at low elevations in most of the rivers of Sindh and Punjab, but have been hunted into local extinction in the wild in the past fifty years. Gharial have been successfully bred in captivity elsewhere in the sub-region and the breeding of other crocodylian species in developing countries, such as Zimbabwe, is well established
207. **Implementation:** A Gharial breeding programme will be established within the CIWC or at a locality convenient to it in Sindh or Punjab. The captive breeding programme will consist of a collaborative effort of Zoos in Lahore and Karachi supported by the *Sindh Wildlife Department* and the *Punjab Parks and Wildlife Department*.
208. **Output 8.16: A Hog Deer (*Axis porcinus*) re-introduction programme is implemented.**
209. **Baseline Situation:** Hog Deer historically occurred in the riverine forests of the lower Indus Basin. Encroachment of agriculture into its wetland habitat has displaced the species and susceptibility to hunting with dogs has further reduced the surviving population.
210. **Implementation:** An experimental Hog Deer breeding programme will be established at two sites near CIWC, one in the north near Attock and one in the south near Taunsa.

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**Output 9: Wetlands biodiversity is sustainably conserved in the Salt Range Wetlands Complex (SRWC).**

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211. **General Baseline Situation:** The *Salt Range Wetlands Complex* comprises of five independent wetlands: Kalar Kahar, Khabbeki, Ucchali, Jahlar and Namal Lakes (See: Figure 1). The entire SRWC has a total length of 175 km parallel to the Salt Range Escarpment that runs from Jhelum, in the east, to Kalabagh in the west. The Ucchali Wetlands Complex, constituting Ucchali, Khabbeki and Jahlar Lakes, has been designated as a *Wetland of International Importance* under the *Ramsar Convention*, a distinction it shares with only eighteen other wetlands in Pakistan. The three lakes of Ucchali Wetlands Complex are situated inside a cup-shaped valley called the Soan Valley, while Namal and Kalar Kahar are located on the periphery of this valley.
212. **Biodiversity:** The area is rich in biodiversity and is the habitat of one of the endemic and endangered species of the country, the Punjab Urial (*Ovis vignei punjabiensis*). Other species, important from the conservation viewpoint are Chinkara (*Gazelle bennettii*) and Red fox (*Vulpes vulpes*). These wetlands presently support the wintering flocks of White-headed Duck (*Oxyura leucocephala*). These lakes also support three other bird species listed in the *IUCN Red Data Book* the Cinereous Vulture (*Aegypius monochus*), the Imperial Eagle (*Aquila heliaca*) and the Sociable Plover (*Vanellus gregarius*). Furthermore, Greater Flamingos (*Phoenicopterus ruber*), Pied Harrier (*Circus melanoleucos*), Greylag Goose (*Anser anser*) and the Ferruginous Duck (*Aythya nyroca*) also visit these wetlands.
213. **Human habitation and resource use:** Socio-economic conditions in the Salt Range Wetlands Complex present a picture of excessive population pressure combined with intensive use of natural resources for livelihoods and daily needs. The main occupations in the region comprise of agriculture and government service, especially in the armed forces. The level of industrial development is low. Agricultural plots tend to be small, usually quarter of an acre, and there is a clear trend towards land ownership as a form of wealth even if the land owned is not cultivable. All land in and around the lakes is privately owned, including the lake beds, which becomes available for cultivation when the water level has receded. Principal crops grown in the area are wheat in winter and vegetables in the summer. Wetlands provide a crucial source of irrigation in this essentially semi arid area. Grazing

pressure in the region has badly eroded most communal grazing areas. Wood extraction is undertaken extensively both for the domestic fuel market and for supply to urban centres. The effects of deforestation on both *shamilat* (community forests) and Government forests have been extensive. Lack of infrastructure development has meant that the lakes are used for common household purposes such as watering cattle and washing clothes although the water of several lakes is reportedly too saline for human consumption.

214. WWF-P's endeavours in the SRWC consist of conservation of wetlands biodiversity in the *Ucchali Wetlands Complex* and the conservation of scrub forest in the Jhanger Valley, where an afforestation programme on communal lands has been completed with the participation of local communities. Additionally, communal PAs have been declared in order to protect the indigenous natural resources of the area. With community participation, the Ucchali Wetlands Complex management plan has already been developed.
215. **Output 9.1: Institutions are established to integrate wetland conservation into local and provincial land use planning in the SRWC.**
216. **Implementation:** After a six-month inception period during which a core *Site Management Team* will be recruited and trained in project administration and the implementation of the *Outputs* shared by four sites, the *SRWC Field Office* is set up, commissioned and an interim *Wetlands Management Committee* (WMC) is constituted. In addition to implementing *Outputs 7.2 – 7.12*, the SMT will have the important responsibility of identifying and describing viable wetlands conservation and management initiatives that emerge in the SRWC but may be suitable for replication elsewhere. Detailed information on such measures will be shared with the PMU. By PY 5, the SMT and the WMC will be superseded by a permanent government or parastatal body created under the auspices of the provincial/territorial conservation agency.
217. **Output 9.2: SRWC site is explored and assessed.**
218. **Implementation:** After receiving advanced training in the use of GPS receivers for geo-referencing field data and in accumulating and formatting information for the *Pakistan Wetlands GIS-database*, the *SRWC Site Manager* will oversee the compilation of a comprehensive cadastral data set for the Complex. This will ensure that senior elements in the SMT are familiar with the full extent of the Complex, both in terms of natural resources and potential stakeholders.
219. **Output 9.3: SRWC immediate action plan for conservation is implemented.**
220. **Implementation:** Components of this plan may include but will not be restricted to: (a) control of illegal effluent discharge in Kallar Kahar Lake; (b) the protection of waterfowl habitat on Kallar Kahar Lake by implementing an interim zoning plan to control recreational use of the lake for boating; (c) development of fire fighting capacity in the villages in collaboration with initiatives such as the *Soan Valley Development Project* in order to contain range land fires that threaten catchment areas; (d) the control of feral dogs in the vicinity of the lakes that support flamingo populations; (e) the introduction of a *moratorium* on the transfer of land ownership in respect of so-called "lake bed" property; (f) control of illegal waterfowl hunting in the vicinity of the lakes and the micro wetlands in the lake catchment areas and (g) an evaluation of traditional rights of access to wetlands resources and the implementation of appropriate short-term legal measures to protect these.
221. **Output 9.4: SRWC communities are mobilised and organised into Village Conservation Committees (VCCs).**
222. **Baseline Situation:** During the PDF (B) Phase it was established that the communities of the SRWC are relatively well-organised and inherently well-disciplined apparently because many of the senior community members are retired military personnel.
223. **Implementation:** Following the model developed by the MACP, conservation management in the SRWC will be achieved through an institutional framework for co-operative planning effected at the village level. Community consultations with various resource users, socially influential people and vulnerable groups will be undertaken to explain the links between conservation and sustainable welfare of people. Resource-use agreements will be negotiated and community leaders will be co-opted to monitor them together with the site-based staff of PWP. Links with alternative income generating programmes such as organic agriculture will be developed to ensure sustainable community support.
224. **Output 9.5: A programme for alternate/diversified livelihoods is developed and implemented.**

225. **Baseline Situation:** The principal proximal threat to the biodiversity in the Salt Range lakes is agricultural encroachment. Mitigation of this threat will require the introduction of substantially more latitude in income generation. Improved agricultural extension, crop substitution, development of eco-tourism, provision of credit for small business and support to value-added activities are options that may be developed in the region.
226. **Implementation:** The PWP will capitalise on lessons learned in a series of approximately ten TRAC funded projects in the UNDP *Sustainable Livelihoods Programme* and the GEF Small Grant supported *Soon Valley Development Programme*. The principal approach will be to empower people, especially women by expanding their economic opportunities through sustainable wetland resource utilisation, alternate skill development, diversification of income generation, employment and access to social services and micro credit.
227. **Output 9.6: An NRM capacity-building initiative for women is implemented.**
228. **Baseline Situation:** Socio-economic surveys during PDF (B) Phase in the SRWC confirmed that women in the vicinity of the conservancies were at least as actively involved in the utilisation of natural resources as men. Female literacy is high in the region and women well integrated into CBOs thus enhancing their active role in NRM.
229. **Implementation:** The PWP will engage female social mobilisers to interact closely with the women in the *Custodian Communities* in order to improve their capacity and skills to sustainably use wetlands resources and reduce the incidence of water pollution from domestic sources.
230. **Output 9.7: SRWC Conservancy is officially proclaimed and established.**
231. **Baseline Situation:** Observations of migratory and resident bird populations in the major lakes of the Salt Range have revealed that, during wetter periods, there is a general movement away from the larger water bodies into the myriad of 'micro wetlands' that occur in the Salt Range in the form of mountain streams, check dams and other small impoundments. Effective conservation measures must consequently, incorporate substantial buffer zones surrounding lakes to form a larger conservancy.
232. **Implementation:** The formation of a conservancy in the SRWC will be based on a careful zonation of the whole region with levels of protection for the natural practical biodiversity in each component. An estimated 92% of the potential conservancy would include privately owned land or communal land, making a community-based approach essential.
233. **Output 9.8: SRWC eco-tourism promotion plan is implemented.**
234. **Baseline Situation:** Although, the Punjab Tourism Development Corporation has established a lodge in close proximity to Kallar Kahar Lake at the eastern end of the *SRWC*, tourism development has not extended to the other Salt Range lakes despite improved accessibility for the inhabitants of Islamabad/Rawalpindi (1.9 million) and Lahore (6.3 million) following the completion of the M2 Motorway in 1998.
235. **Implementation:** The site management team of the SRWC will identify a series of suitable small, low cost, environmentally friendly camping sites to be operated by private entrepreneurs from the *Custodian Communities*. Private individuals and representatives of CBOs that are interested in participating in the development of the sites will be provided with adequate guidance in the *training and capacity building* component of the PWP. A few small demonstration developments may be supported by the Project.
236. **Output 9.9: Vegetation enclosure plots are set up.**
237. **Baseline Situation:** The overgrazed and degraded state of most of the rangeland in the catchment areas of Salt Range lakes is a condition that has existed for generations. Small areas in the degraded section of the Salt Range that have been inadvertently protected from livestock grazing pressure, however, exhibit substantially greater plant species diversity and denser cover than the adjacent overgrazed rangeland.
238. **Implementation:** The PWP will construct a total of twenty vegetation enclosures, each 1 ha in extent, sited strategically in overgrazed communal grazing lands. The enclosures will consist of livestock and game-proof fenced quadrats 100 m x 100 m square. The projected recovery of the vegetation in the plots will be monitored by means of regular fixed-point photographs and, possibly botanical surveys. Each enclosure will, by written agreement, be placed under the custodianship of a suitable

local CBO and will, as the vegetation recovers, be used to illustrate the benefits of good rangeland management and develop management programmes.

**239. Output 9.10: Catchment area soil conservation Demonstration Sites are established.**

240. **Baseline Situation:** During the consultative phase of the PDF (B), siltation emerged as one of the significant sources of degradation of the Salt Range lakes. The siltation of the lake beds is clearly related to the high rates of soil erosion in parts of the associated catchment areas. The *Punjab Soil Conservation Department* has been engaged in a low-intensity soil conservation campaign for over a decade but its activities have been restricted by a general lack of funds and of trained expertise in the form of extension officers.

241. **Implementation:** The SMT will negotiate the participation of up to fifteen communities in this component of the programme and establish a demonstration project in each case. Soil reclamation work will include practical measures such as the construction of check dams, use of gabions to arrest the headward erosion of gullies and will implement more passive measures such as the introduction of rotational grazing. The recovery of test sites will be photographically monitored and the more successful sites will be used to demonstrate the value of the applied soil conservation measures to other communities in the SRWC.

**242. Output 9.11: SRWC lake beds are surveyed.**

243. **Baseline Situation:** The most detailed existing large scale maps of the lakes of the Salt Range are those produced by the PDF (B) Phase of the Project from topo-cadastral detail digitised from the Russian 1:100,000 military series. The 20 m contour interval used in the resultant DEMs, while adequate for the description of the catchment areas, does not provide any bottom detail for these essentially shallow water lakes.

244. **Implementation:** A Garmin® GPS receiver/depth sounder combination instrument will be used to make transects across deeper portions of the lakes. In cases where the water is too shallow for accurate measurement using this instrument, a conventional physical measurement technique will be used. The existing water level gauges will be rehabilitated and recalibrated to allow more accurate measurements of the seasonal water levels to be maintained.

**245. Output 9.12: A Bird ringing programme is implemented.**

246. **Baseline Situation:** Despite substantial concentrations of species like the Greater Flamingo (*Phoenicopterus ruber*) on the Salt Range lakes, relatively little bird-ringing work has been done to establish the extent and overall range of the bird populations that are dependent on the lakes. In the long-term, it may be counterproductive for extensive conservation measures to be applied to these migrant populations without any substantial evidence as to where they emigrate from or go to and what measures are or should be in place in those regions.

247. **Implementation:** The PWP will, carry out an annual bird-ringing programme at the SRWC for six successive years.

**248. Output 9.13: An Experimental programme for breeding endangered Cranes is implemented.**

249. **Baseline Situation:** Four species of cranes have been recorded in the wetlands of south-central Pakistan. Demoiselle Cranes (*Anthropoides virgo*) are relatively plentiful while the Common Crane (*Grus grus*) is more rarely seen. Siberian Cranes (*Grus leucogeranus*) have traditionally overflowed Pakistan in their annual migrations in the past but they and the Sarus Crane (*Grus antigone*) are now regarded to be irregular visitors to the wetlands of the country.

250. Several tribal groups in south-eastern NWFP have long-standing traditions of capturing, rearing and hunting crane species. These practices are essentially illegal but are notoriously difficult to control.

251. **Implementation:** The Project will establish an experimental breeding facility for crane species in collaboration with communities in the above-mentioned areas that have historically recorded high densities of cranes. An effort will be made to persuade people who privately “own” threatened indigenous crane species to “loan” these birds to the breeding facility. Local private sector expertise in crane breeding will be drawn upon to implement the programme which may provide an alternative livelihood for people who originally sustained themselves with illegal crane capture and trading.

**Output 10: Wetlands biodiversity is sustainably conserved in the North-west Alpine Wetlands Complex (NAWC).**

252. **General Baseline Situation:** The *North-west Alpine Wetlands Complex* (See: Figure 1) essentially consists of a series of high altitude, interlinked, glacial, kettle and valley bottom lakes, marshes, peat bogs and braided stream beds in the Yarkhoon Valley. The range in elevation of the wetlands extends from 2,600 m in the southwest to 4,150 m in the case of Lake Karumbar at the north-eastern extremity. The NAWC, which is about 70 km long and up to 23 km wide, occupies an area of c. 1,760 km<sup>2</sup>. The higher mountain peaks in the complex, six of which are over 6,000 m, have permanent snow accumulation zones, icefields and glaciers
253. **Biodiversity:** The indigenous biodiversity of the valley has been poorly studied. Typical plant species in the western valley bottoms are *Hippophae rhamnoides*, *Myricaria elegans*, *Populus ciliata* and *Salix viminalis*. Above the tree line, the dominant grasses are *Festuca altaica* and *Poa attenuata*. While there are year-round resident populations of wild vertebrates at lower elevations in the western sector of the valley, those in the eastern sector are either hibernating species such as the Golden Marmot (*Marmota caudata aurea*) or seasonal migrants such as the Marco Polo sheep (*Ovis ammon*). Flocks of migratory birds use the wetlands during the early and late summer periods.
254. **Human habitation and resources-use:** The communities in the eastern sector are predominantly *Wakhi* people – hardy pastoralists, whose settlements are snowbound for at least four months in the year. The principal source of subsistence in the eastern sector at elevations above 3,300 m is seasonal pastoralism augmented by hunting of alpine ungulates and migratory waterfowl. Fuel for space heating and cooking is a major problem and emergent vegetation as well as peat in the marshes and around the lakes and stream beds is cut, dried, stored and burned. Essential livestock is maintained through the winter by stall-feeding. Fodder consists of mostly cut and dried emergent vegetation from alpine wetlands. Non-essential livestock are moved down the valleys in the winter to areas where the climate is milder. This leads to dense concentrations of domestic animals around the perennial water resources. Isolated water bodies, such as kettle lakes on perched plains, are almost completely denuded of peripheral and emergent vegetation by the end of the summer.
255. The region is partially accessible during the year and well beyond the reach of the NWFP Wildlife Department's limited resources. With the notable exception of one senior government officers, few conservation biologists have ever visited the region.
256. **Output 10.1: Institutions are established to integrate wetland conservation into local and provincial land use planning in the NAWC.**
257. **Implementation:** After a six-month inception period during which a core *Site Management Team* will be recruited and trained in respect of project administration and the implementation of the Outputs that all four sites share in common, the *NAWC Field Office* is set up, commissioned and an interim *NAWC Wetlands Management Committee* (WMC) is constituted. In addition to implementing *Outputs 7.2 – 7.12*, the SMT will have the important responsibility of identifying and describing viable wetlands conservation and management initiatives that emerge in the NAWC but may be suitable for replication elsewhere. Detailed information on such measures will be shared with the PMU. By PY 5, the SMT and the WMC will be superseded by a permanent government or parastatal body created under the auspices of the provincial/territorial conservation agency.
258. **Output 10.2: An NAWC site is explored and assessed.**
259. **Implementation:** After receiving advanced training in the use of GPS receivers for geo-referencing field data and in accumulating and formatting information for the *Pakistan Wetlands GIS-database*, the *NAWC Site Manager* will personally oversee the compilation of the comprehensive cadastral data set for the complex. This will ensure that senior elements in the *Site Management Team* are familiar with the full extent of the Complex, in terms of the natural resources and potential stakeholders in the Project.

260. **Output 10.3: NAWC immediate action plan for conservation is implemented.**
261. **Implementation:** Components of this plan may include but will not be restricted to: (a) the control of feral dogs in the vicinity of Karumbar Lake and the Upper Yarkhoon Valley; (b) control of the building of riverside weirs and hunting blinds to facilitate the hunting of waterfowl; (c) control of illegal hunting of waterfowl and wetlands dependent wild ungulates; (d) exclusion of key wetlands site from use as grazing grounds; (e) control of the use of explosives to catch fish in the Yarkhoon River; and (f) an evaluation of traditional rights of access to wetlands resources and the implementation of appropriate short-term legal measures to protect these.
262. **Output 10.4: NAWC communities are mobilised and organised into Village Conservation Committees (VCCs).**
263. **Baseline Situation:** During the PDF (B) Phase it was established that the communities of the NAWC are extremely isolated and very poorly organised in general with the possible exception of education.
264. **Implementation:** Following the model developed by the MACP, conservation management in the NAWC will be achieved through an institutional frame-work for co-operative planning effected at the village level. Community consultations with various resource users, socially influential people and vulnerable groups will be undertaken to explain the links between conservation and sustainable welfare of people. Agreements on resource use will be negotiated and community leaders will be co-opted to monitor these together with the site-based staff of PWP. Links with alternative income generating programmes will be developed to ensure sustainable community support.
265. **Output 10.5: A programme for alternate/diversified livelihoods is developed and implemented.**
266. **Baseline Situation:** The impact of *Wakhi* pastoralism on the sensitive high alpine lakes is substantial. Ways of mitigating the grazing pressure on, a least, certain selected wetland resources will be developed. This will necessitate exploring opportunities for diversified or alternate livelihoods.
267. **Implementation:** The PWP will compile a range of innovative options for reducing pastoralist pressure on the NAWC without creating any net loss of livelihoods or exacerbating poverty. The PWP will also capitalise on lessons learned in a series of approximately ten TRAC funded projects in the UNDP *Sustainable Livelihoods Programme*. The principal approach will be to empower people, especially women by expanding their economic opportunities through sustainable wetland resource utilisation, alternate skill development, diversification of livelihoods, employment and access to social services.
268. **Output 10.6: An NRM capacity-building initiative for women is implemented.**
269. **Baseline Situation:** The socio-economic surveys performed during the PDF (B) Phase confirmed that women in the vicinity of the conservancies do, as is elsewhere the case, provide sustenance to their families through management and use of natural resources. *Wakhi* women have rudimentary knowledge of both ecological interrelationships and a modicum of ecosystem management.
270. **Implementation:** The PWP will engage female social mobilisers to interact closely with the women in the *Wakhi* in order to improve their capacity and skills to sustainably use wetlands resources.
271. **Output 10.7: NAWC Conservancy is officially proclaimed and established.**
272. **Baseline Situation:** The NAWC includes several spectacular wetlands such as Lake Karumbar and the Lashkar Ghaz peat bog. Largely inaccessible, the NAWC is an ideal prospect for the long-term establishment of a self-administered, self-regulated community-based, wetlands conservancy.
273. **Implementation:** The NAWC site team will identify the key wetland resources of the complex and motivate for them to be extended the highest possible level of government protected area wetlands status. The surrounding buffer zones and associated wetlands will then be organised into a conservancy with the dual objective of protecting the natural biodiversity and sustaining the *Wakhi* and *Chitrali* inhabitants with no net loss of livelihoods.
274. **Output: 10.8: An NAWC eco-tourism promotion plan is implemented.**
275. **Baseline Situation:** The spectacular alpine scenery of the upper Yarkhoon Valley includes 149 peaks over 5,000 m and 21 over 6,000 m with all the attendant splendour of snow and ice fields and glaciers. These resources combine to make the 3– 4 day trek from the village of Lasht at the western end of NAWC to the Lake Karumbar, in the east, one of the most spectacular alpine journeys on earth. The possibility of the introduction of a pony trek along the length of the wetland complex therefore holds substantial potential.



276. **Implementation:** The NAWC Site Management Team will explore the possibilities of introducing the envisaged pony trek on a trial basis and will also develop a plan to enhance and promote the existing conventional trekking routes that traverse the upper Yarkhoon Valley. Well regulated sport hunting also holds some potential for development.
277. **Output 10.9: A Ramsar status application for NAWC is proposed.**
278. **Baseline Situation:** A preliminary analysis performed using the *Pakistan Wetlands GIS-database* revealed that none of the significant Alpine Wetlands, with the exception of Saucher Lake on the Deosai Plains, enjoy appropriate protected status.
279. **Implementation:** A proposal will be prepared that motivates for the upper Yarkhoon Valley to be recognised as a *Ramsar Site*. The Government of NWFP will be requested to consider extending appropriate Protected Areas status to the NAWC.
280. **Output 10.10: A bird ringing programme is implemented.**
281. **Baseline Situation:** Bird ringing campaigns carried out discontinuously during the past two decades in the main valley of the Chitral River have only enabled approximate estimates to be made of the winter migrant dispersal in South Asia. In the long-term, it may be counterproductive for extensive conservation measures to be applied to these migrant populations without any substantial evidence as where they come from or go to and what measures are or should be in place in those regions.
282. **Implementation:** The PWP will, carry out an annual bird-ringing programme at the NAWC for six successive years and will, if feasible, also collect bird tissue samples to enable DNA analyses.
283. **Output 10.11: Appropriate energy use programme is introduced to communities.**
284. **Baseline Situation:** The *Wakhi* communities living at high elevations above the tree line in the eastern extremes of the NAWC resort to burning emergent vegetation reaped from wetlands in the vicinity. The *Wakhi* houses are poorly insulated and excessive heat loss probably further exacerbates the fuel use problems. A range of fuel-efficient stove initiatives have been implemented in other parts of the NWFP, the Northern Areas Territory and even in neighbouring Afghanistan. None of these technologies has apparently ever penetrated the Yarkhoon Valley.
285. **Implementation:** The SMT will, investigate ways in which the insulation of the traditional *Wakhi* houses may be cost-effectively improved. This initiative will be complemented with the introduction of appropriate stove technology and establishment of experimental woodlots at higher elevations.

## 5. Anticipated End-of-Project Situation

286. The successful implementation of the Pakistan Wetlands Project will create an appropriate enabling environment that would facilitate and give impetus to enhanced wetlands conservation in Pakistan. This will enhance and strengthen the basic institutional, legal, policy, technical and financial framework necessary to mainstream wetlands conservation in the national policy-making process. There is a high probability that the following results will be achieved by the end of the Project.
287. **Institutional capacity for wetlands conservation:** By the end of the Project, the PMU and PSC would have been absorbed within the government structure as a wetlands management entity under the NCCW. With its institutional and human resources capacity strengthened, and with the technical resources developed under TREC, this entity will be enabled to effectively undertake and co-ordinate initiatives for wetlands conservation.
288. **Decision-support systems functional and Pakistan Wetlands GIS-data Base established:** A GIS-based inventory of Pakistan's natural wetlands will have been established. It will be accessible to all agencies that are directly or indirectly involved with wetlands conservation. Updated versions of the GIS will have been installed in all federal and provincial/territorial Wildlife Conservation Agencies and their staff trained to use this tool for enhanced planning and decision-making.
289. **Pakistan Wetlands Conservation Strategy:** Pakistan will have formally adopted and implemented a comprehensive strategy for the conservation of naturally occurring wetlands.
290. **Wetlands Awareness:** The level of general public awareness of wetlands and associated natural resource conservation issues will have been raised to the point that the general public are aware of the true value and ecological significance of natural wetlands and in favour of proactive measures to conserve wetlands.
291. **Technical Capacity for Wetlands Conservation:** A substantially enhanced level of human resource capacity will have been established in Pakistan by means of intensive, on-going, pre-service

and in-service training programmes at appropriate levels for governmental and partner agencies including local communities.

292. **Wetlands Management Techniques:** Working in concert with the people of Pakistan in the form of the *Custodian Communities*, government and private sector conservation agencies will have developed the capacity to sustainably manage suites of wetland resources in the form of wetland conservancies. The public and private sector partnerships at each site will have grappled with and solved many of the idiosyncratic problems usually encountered in wetlands conservation in each region. The sites will present effective, working models for replication and for solving wetlands conservation problems in similar environments elsewhere in the country.
293. **Sustainability:** Financial sustainability of wetlands conservation initiatives will have been ensured through the investigation and recommendation of financing measures for each intervention. This is likely to include public and private partnerships and the introduction of eco-tourism, and other innovative financial sustainability measures.

## 6. Stakeholder Participation in Project Design

294. During the PDF (B) preparatory phase, the project has placed a strong emphasis on ensuring active stakeholder participation at all levels, federal, provincial/territorial, local and community. Inputs from stakeholders have been incorporated within an iterative process of project design, with repeated consultation processes to verify needs, priorities and challenges of various stakeholders, and to secure their commitment and active engagement in the project. Detailed consultations were held at the national and provincial/territorial level by means of five workshops involving a broad spectrum of stakeholders. This process culminated in the short-listing of potential sites for investigation. Furthermore, the PDF B phase of the project was overseen by a highly active and motivated PSC composed of a core of six representatives, each representing an appropriate provincial/territorial department and a representative from NCCW. The PSC provided valuable guidance to the Project by fine-tuning project design and facilitating the prioritisation and selection of the four *Demonstration Sites*. A *Scientific Advisory Committee* consisting of selected specialists also provided technical oversight.
295. The project preparation and design has equally benefited from the active involvement of local communities in identifying needs, priorities and challenges in their interaction with wetlands. Field surveys conducted during the PDF (B) phase of the Project involved participation of and intensive consultations with communities at each of the four project sites. Following a *Participatory Rural Appraisal* (PRA) approach, the Project has sought inputs from a wide variety of income groups that have an impact on wetlands and their resources. In the CIWC, seventeen PRA exercises were conducted in two study areas. These included consultations with fishing communities, farmers, (both landowners and landless tenants), fishing contractors, migrant squatters living close to wetlands, forest users and graziers. Similarly, a range of PRAs were held in MCWC with fisherfolk and other communities. Consultations in the SRWC involved public meetings with a range of CBOs, farmers, graziers, local representatives, and forest users. PRAs and household surveys were conducted to determine wetlands use by various income/occupation groups. Graziers were the main focus of community consultations in the NAWC. Parallel consultations were held with men and women in each Demonstration Sites to ascertain gender differences in resource-use.

## 7. Eligibility Under the CBD

296. The Project complies with several articles of the CBD. Of principal relevance are **Articles 6, 7, 8, 11, 12, 13, 14, 17 and 18**. By developing a *National Wetlands Conservation Strategy* and reviewing appropriate national policies to assess their effects on wetlands, the Project complies with both parts of **Article 6: General Measures for Conservation and Sustainable Use**. Through the conduct of detailed field surveys, development of management plans, mitigation of threats, monitoring of biodiversity and data compilation by means of the *National Wetlands GIS Database*, the Project also complies with **Article 7: Identification and Monitoring** and **Article 14: Impact Assessment and Minimising Adverse Impacts**. Compliance with **Article 8: In-situ Conservation** is evident through the establishment of PAs and conservancies, development of management plans for conservation of biodiversity, promoting sustainable use within and outside PAs and minimising risks to biodiversity. The emphasis placed on promotion of sustainable use of wetland resources with community participation specifically implements **Article 10: Sustainable Use of Components of Biological Diversity**. By promoting alternative livelihoods to raise income levels of poor communities, the Project complies with **Article 11: Incentive Measures**. Incorporation of **Article 12: Research and**

**Training** is evident under the components on national and provincial capacity building and skill enhancement. The Project also supports overlap with international technical developments on wetlands conservation which directly complies with **Article 17: Exchange of information** and **Article 18: Technical and Scientific Co-operation**. Through promoting awareness at both national and site specific levels, the Project complies with **Article 13: Public Education and Awareness**.

## 8. Eligibility for GEF Financing

297. The Project is in line with the GEF's new Emerging Directions in the Biodiversity Focal Area, and is consistent with the objective of **Strategic Priority 2: Mainstreaming Biodiversity Conservation in Production Sectors and Landscapes**. The project is designed on the premise that sustainable management of wetlands requires the mainstreaming of biodiversity and ecological considerations within the productive uses of wetlands and their values, for both commercial and subsistence purposes. The project places emphasis on promoting a broad based integration of biodiversity conservation within the broader development agenda at the national, provincial and local level in the country, through capacity building, advocacy and awareness raising, and demonstration activities. The project is highly responsive to the following specific sub-objectives of SP 2: (a) catalyze mainstreaming through support for systemic and institutional capacity building (b) improve awareness and education among government agencies and other stakeholders (c) demonstrate mainstreaming, particularly local livelihood benefit – global environmental benefit linkages (through 'win-win' examples). The project will focus on building systemic capacity for mainstreaming through its work on legal, policy and awareness issues, while developing institutional and individual capacities within government agencies and a number of other stakeholders. It will promote partnership building between agencies, local communities and private sector that secure biodiversity conservation and promote economic gains.
298. The project falls within the **GEF Operational Programme 2: Coastal, Freshwater and Marine Ecosystems**. The combination of initiatives in biodiversity conservation, awareness raising and community participation approach fulfils GEF's emphasis on "integrated approaches to coastal area development" and "strengthen(ing) the network of conservation areas to conserve coastal, marine and freshwater biodiversity". The Project complies with the GEF's guidance on developing programmes based on ecosystems by implementing activities at a wetland complex level where each complex is representative of a distinct ecosystem. Such activities will fulfil the GEF's consideration for "making systematic progress in securing global diversity objectives on the basis of a set of representative and complementary ecosystems of global biodiversity significance". Other considerations such as those on designing a "framework for the design and implementation of cohesive systems of national actions" are met through the formation of a *National Wetlands Management Strategy*. With its focus on wetlands in Arid and Semi-Arid ecosystems, as well as linkages with control of land degradation, the project is relevant to OP 2 **Arid and Semi-Arid Ecosystems**. By promoting alternative livelihoods, the Project aims to take pressure off land-use in the form of intensive agriculture and other occupations in the vicinity of wetlands to promote sustainable land use. Specific activities in NAWC will comply with OP 4 on **Mountain Ecosystems** by reducing pressure from pastoralism. In this way, the Project will promote "sustainable land use practices on mountain slopes to protect habitats". In accordance with GEF's "Considerations in Developing Operational Programmes", the Project encompasses the central issues of (a) long-term protection; and (b) sustainable use of biodiversity. Both considerations guide the national level activities such as awareness raising, enhancing of technical capacity and skills and formation of a *National Wetlands Management Strategy*.
299. '*In-situ*' conservation remains the focus of site level activities – the sites being representative of distinct subsets of wetlands ecosystems. The promotion of sustainable use of biodiversity in accordance with GEF's guidelines is promoted through review and update of relevant policies and support for scientific and field level exchange of information with other countries. Collection of detailed baseline information, inventories and development of indicators for impact assessment under the *Wetlands Conservation Strategy* will be another important output, as will the development of decision-support systems and tools and maintenance of a GIS-based information network. Project outputs related to poverty alleviation and development of sustainable livelihood specifically satisfy the guidance on **stakeholder involvement** and **social issues** at the PA level. Additionally, the involvement of multiple stakeholders – governmental, non-governmental and private – in project implementation will create long-term mechanism for public-private collaboration in wetlands conservation.

## 9. Execution Arrangements

300. The PWP will be executed by the *Office of Inspector General of Forests* (IGF) with the NCCW under the MoE, Government of Pakistan. In this role, IGF will collaborate closely with the federal, provincial and territorial government agencies that are directly or indirectly involved in the Project. In accordance with UNDP-Pakistan policy, the Executing Agency will be entrusted with overall co-ordination of the Project and will assume absolute responsibility for the achievement of the PWP's approved objectives.
301. **National Project Director (NPD):** The Inspector General of Forests, who is an *ex-officio* Member and Secretary of the NCCW, will be National Project Director (NPD). The incumbent will be responsible for overall supervision of the Project and for liaison with UNDP and other project partners. The *Project Management Unit* (PMU) will function under the direct supervision of the NPD. The NPD will exercise a high level of autonomy in decision-making and approving modalities for project implementation such as quarterly plans, budgets, progress reports, etc. (**See: Lessons learned, Section 13.2**). When necessary, the NPD will ensure that relevant project partners are consulted and critical decisions are made by consensus for the attainment of project objectives. All project inputs, such as, recruitment of personnel, procurement of equipment, negotiation of sub-contracts and provision of training will be undertaken with the approval of the NPD. The NCCW will provide administrative support to the NPD for the supervision of the Project.
302. **Geographic Information System Analyst:** A GIS specialist will be placed under the supervision of the NCCW for the duration of the Project to operate the master copy of the W-GIS database.
303. **Project Steering Committee (PSC):** The PSC will provide overall direction and monitor the implementation of the Project. An equally important role will be the facilitation of inter-agency co-ordination at a national level. The NPD will serve as Convenor of the PSC which will be chaired by the Secretary, MoE. The PSC will be composed of *ex-officio* representatives of UNDP and appropriate national and provincial/territorial government and non-government agencies. As the Project is of comparatively long duration, it may reasonably be expected that there will be a relatively high turnover of *ex-officio* members. It is therefore important that the PSC includes a *quorum* of members who are appointed in their personal capacity for the duration of the Project in order to retain a modicum of "institutional memory" (**See: Lessons learned, Section 13.2**). The PSC will monitor and evaluate the progress of the Project and take or endorse associated policy level decisions. The PSC meeting will be convened a minimum of once a year. The Chair will, however, have the discretion to convene the PSC more than once depending on the need for taking policy decisions.
304. **Transition of the PSC to a permanent wetlands conservation entity:** By the end of PY 5, it is anticipated that the PSC will be superseded by a *National Wetlands Conservation Council* (working title) within the NCCW, a formal body, constituted in terms of the *National Wetlands Management Strategy* that will have been adopted and implemented by that time. This Council will be supported at an operational level by a Secretariat that will take over the management of the final phases of the Project from the PMU, effectively replacing it in the process.
305. **Responsibility for the Delivery of Outputs:** The *Executing Agency* will be assisted by WWF-Pakistan for the delivery of outputs under an agreement to be signed between the IGF and WWF-Pakistan. The agreement will specify issues such as functions, responsibilities, financial accountability measures and reporting requirements. In this capacity, WWF-P will, jointly with other implementing agencies, specified against each of the Project's *Outputs*, act as the *lead technical agency* for the Project. WWF-P qualifies for taking the lead technical role by virtue of the organisation's broad range of experience in the implementation of NRM projects in Pakistan, especially with regard to community-based conservation of wetlands and the introduction of sustainable natural resource-use programmes. The authority vested in WWF-Pakistan will come into effect upon the signing of the Project Document, the agreement between IGF and WWF-Pakistan and the *Project Cooperation Agreement* (PCA) that will be signed between UNDP and WWF-Pakistan. The overall implementation modalities would be governed by UNDP's *Project Cycle Operations Manual* (PCOM), plus ancillary rules and procedures established for the UN System.
306. The NCCW, with the assistance of the lead technical agency, will co-ordinate all national components of the Project and enter into partnership agreements with the appropriate government partner agencies responsible for the implementation of the area-based initiatives in each of the four *Demonstration Sites*.

307. *Project Management Unit (PMU)*: The organisational nucleus of the Project will be *Project Management Unit (See: Optional Annex 31)* consisting of professional staff supported by a permanent cadre of technical and administrative officers and assistants, clerical and unskilled staff.
308. The NPD will, in consultation with UNDP and the Technical Agency, appoint a *Chief Technical Advisor (CTA)* with the technical expertise and skills required by the Project. The CTA will be responsible for overall organisation and management of project activities to produce outputs, the provision of high level technical assistance for project implementation, co-ordination and supervision of project personnel, and reporting.
309. A dedicated account would be opened as a repository for project monies. Funds will be appropriated on a quarterly basis, subject to the provisions in the Project budget and upon timely receipt of a financial report from the PMU. The PMU will report on and justify expenditures on a quarterly basis to UNDP through the NPD. Further disbursements will be made subject to receipt of quarterly financial statements. The CTA will be responsible for monitoring the commitment of funds under individual budget lines until the relevant disbursements have been made and the amounts recorded in the Project account. UNDP-Pakistan's Finance Section will make payments following a joint review of the quarterly financial and progress reports by the NPD and UNDP. The quarterly disbursements would be recorded in duly certified *Combined Delivery Report (CDR)* by the NPD and CTA.
310. UNDP will arrange for financial auditing of the Project on an annual basis in line with standard procedures but, in doing so, will endeavour to avoid programmatic clashes with seasonally based fieldwork. Financial Audits will provide an assessment of the rate of delivery, financial accounting and monitoring systems, equipment use, and maintenance, and financial management structure for the Project, including the adequacy of internal control and record-keeping mechanisms. Copies of the annual audit reports will be made available to the NPD and PMU. All local and international procurement under the Project will be carried out as per the *Project Cooperation Agreement*. The PMU would establish and maintain a property ledger for equipment purchased with Project funds.

## 10. Risks and Sustainability

311. There are several potential **risks** to the Project's success but none is perceived to be of such a magnitude as to jeopardise implementation. Risks have been assessed during the evolution of the Project and measures implemented to reduce their impact. Significant risks are listed in **Table 2**.
312. Project design has laid emphasis on **sustainability** through several means. By addressing wetlands conservation at a wetlands complex level rather than as a piecemeal, individual site-based efforts, the Project ensures that **ecological sustainability** is maintained at an ecosystem level. The Project will build long-term measures for **social sustainability** by supporting village level community institutions for conservation, co-opting existing CBOs in community consultations and creating incentives for marginalised groups such as women, landless and migrant communities to participate in project activities. As economic benefits begin to accumulate in to wetlands dependent communities, their cooperation will be secured in the conservation process. On a wider level, the awareness campaigns will establish widespread support within all echelons of Pakistani society for wetlands conservation.
313. Given Pakistan's economic challenges, the Project has included mechanisms for securing **financial sustainability** for Project interventions through: (a) introducing ecotourism activities; (b) building mechanisms for long-term financing from multinational corporations and private enterprises; and (c) supporting the post of a specialist Fundraiser for the duration of a project. The fundraising mechanisms will be designed to provide support for on-going activities beyond the life of the Project. Improving the commitment, skills and knowledge of people who run Pakistan's key institutions is the most effective project intervention for **institutional sustainability**. Improving the policy framework and institutional co-ordination will also ensure strengthened institutional commitment to executing conservation measures. The purpose of ensuring that designated officials are pledged to participation the PSC during the Project's life further creates a long-term momentum for institutional support. Strengthened links with CBOs, Rural Support Networks and creation of representative site-based *conservation committees* will also ensure institutional sustainability.

## 11. Incremental Costs

314. The total Project cost amounts to US \$12,122,413 (including PDF B) of which agreed incremental costs to be financed by the GEF amount to US \$2,991,350 excluding preparatory assistance. Co-

financing amounting to US \$8,764,063 has been identified. The full *incremental cost analysis* (including the *Incremental Cost Analysis*) has been appended as *Annex 4*.

## 12. Budget

**Table 1:** A summary of projected expenditure for the PWP, itemised by outputs.

Project Outputs		Investment (US\$)		
		GEF	Co-financing	Total
1	Project Coordinating Mechanism, Management Units and Technical Resource and Equipment Centre	491,500	1,430,500	1,922,000
2	Pakistan wetlands surveys GIS-database	543,250	1,005,750	1,549,000
3	National Wetlands Conservation Strategy	224,250	140,750	365,000
4	Training and Capacity -building Initiative	559,450	700,550	1,260,000
5	Nation-wide Wetlands Awareness Campaign	398,400	643,600	1,042,000
6	Long-term Fund-raising Campaign	64,000	191,000	255,000
7	Makran Coastal Wetlands Complex	318,750	1,032,250	1,351,000
8	Central Indus Wetlands Complex	391,750	1,237,250	1,629,000
9	Salt Range Wetlands Complex	0	1,345,000	1,345,000
10	North-west Alpine Wetlands Complex	0	1,074,000	1,074,000
11	<b>Total</b>	<b>2,991,350</b>	<b>8,800,650</b>	<b>11,792,000</b>

## 13. Monitoring, Evaluation and Lessons Learned

### 13.1 Monitoring and Evaluation

315. The Project Steering Committee will oversee the process of *Monitoring and Evaluation* during the life of the Project. The *Project Implementing Agency* will provide **Quarterly Reports** summarising Project progress to the PSC according to the format specified in the *UNDP-Pakistan Project Cycle Operations Manual*, as revised. Based on a review of the Project's performance, an **Annual Report** will be presented to UNDP and the PSC. This will be reviewed at the first meeting of the PSC in each successive project year but will be prepared annually in mid-December to meet with the requirements of the UN's annual reporting cycle. A **Tripartite Mid-term Review** undertaken by a mission composed of independent members will take place in PY4. A set of indicators to track project progress at the mid-term level will be defined at the outset of the Project, based on the Project's *Logical Framework Analysis*. Detailed **biological and socio-economic surveys** will be undertaken at the beginning of the Project to establish a baseline against which future progress may be measured. These surveys will be repeated at the mid-term stage, immediately prior to the *Mid-term Review*, to provide a *before and after* assessment of project activities and to adapt or even replace project interventions for increased effectiveness. After the mid-term evaluations, such surveys may be wholly or partially repeated as deemed necessary by PSC and *Project Implementing Agency*. A **Final Tripartite Review** will take place at the end of the Project. This review will evaluate the PWP's success and impact and will document the lessons learned for further projects or policy development. UNDP will, as is customary, produce an annual *Project Implementation Review (PIR)* for the GEF portfolio.

### 13.2 Lessons Learned

316. Lessons learned during the PDF(B) phase and from other similar projects have been instrumental in guiding project design. Firstly, **A project such as the PWP benefits substantially from the overall technical and institutional guidance of an NPD, who is able to exercise an advanced level of control over the decision making process.** The NPD's level of autonomy within the government hierarchy should be relatively high and clearly defined and his/her level of awareness of the day-to-day progress with the project should be as high as possible. Secondly, due to an inherently high level of staff turnover in governmental departments, the *Project Steering Committee* during the PDF(B) phase suffered from lack of continuity of effort and institutional memory. This reality has

required repeated efforts to update new PSC members on earlier decisions and actions of the PSC. To ease this situation, **the Project recommends the appointment, on merit, quorum of senior staff from appropriate departments as permanent members of the PSC, for the duration of the Project.** Thirdly, few conservation projects currently under implementation in Pakistan have introduced measures for **long-term financial sustainability** resulting in piecemeal efforts that tend to seize up as funds become depleted. Learning from this drawback, the Project supports the recruitment of a professional fundraiser and a financial advisory sub-committee of the PSC to establish mechanisms for long-term financial sustainability of the PWP. Fourthly, earlier NRM projects have been hampered by a lack of **technical capacity** to implement activities. To overcome this limitation, the Project provides for an inception period prior to commencement of major interventions in the work plan to enable staff in governmental and partner agencies to acquire a modicum of skill before the pace of the Project picks up. Additionally, the Project will involve a range of partners – NGOs, CBOs, research institutions and others - during implementation to benefit from the relevant capacity of various organisations. Contracting out the implementation of project components that may be effectively undertaken by partner organisations will ensure that technical capacities of various organisations are used under the Project. This will also serve to transfer skills to and strengthen technical capacity of governmental agencies. Fifthly, the Project proposes **cost effectiveness** by maintaining a central pool of equipment that will be available to site level project teams and other agencies when required. Finally, several conservation projects that have been implemented in the past have undertaken community participation without an adequate **gender framework**. As a result, women's roles in NRM and conservation have been ignored or, at best, marginally addressed. The PWP has actively involved consultations with women during the preparation phase and will maintain this effort by placing a special emphasis on the integration of women into project activities wherever feasible.

**Table 2: Pakistan Wetlands Project Assessment of Significant Risks**

	<b>Risk</b>	<b>Threat Category</b>	<b>Brief Description</b>	<b>Mitigation Measures</b>
<b>Overall</b>	The economic and political instability in Pakistan may prevent effective implementation.	Low-medium	Regional conflict, economic insecurity and law and order situation may worsen leading to the Project being delayed or shelved.	Little can be done to mitigate regional and large scale economic conditions. The Project will maintain an active dialogue with governmental agencies to cement their support to the Project.
<b>Nat'l Wetlands Strategy</b>	Resistance in formal adoption of Wetlands Management Strategy	Low	Various governmental departments may have conflicting views on the Strategy which could jeopardise its formal adoption.	Active involvement of governmental agencies and departments in Strategy formulation. Regular consultation with PSC to elicit, address and incorporate comments.
<b>Awareness Raising</b>	Campaigns may not be successful in changing people's attitudes towards conservation.	Low-medium	Several worthy initiatives compete with conservation issues in Pakistani society and hence people may not pay enough attention to them.	Detailed social surveys will determine the most effective means of propagating conservation. Technically competent organisations and individuals will be co-opted for the awareness raising campaigns. Famous people may be co-opted as "spokespersons" for conservation.
<b>Site level Activities</b>	Communities may not co-opt into conservation activities.	Low-High	In areas where the Project makes a fresh start, communities may not become convinced that curbs on resource-use and other project activities are in their benefit.	Intensive initial period of community consultation involving all types of resource-users. This will include explaining project benefits and forming conservation committees where there are no CBOs. Site level and wider awareness of benefits and actual benefit sharing will further enlist community support.
	Conflicts within communities may jeopardise site level activities	Medium		All levels and groups of people will be involved in project activities. Training on conflict resolution will be provided to social mobilisers

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## Annexes



## COMPREHENSIVE LIST OF PROJECT ANNEXES AND MAPS

**Note:** Annexes attached with Project Brief Submission are **highlighted** below. All remaining optional annexes can be provided upon request.

	#	Annex Title <sup>1</sup>	Computer Filename
<b>Attached</b>	<b>1</b>	<b>GEF Focal Point Endorsement</b>	<b>GEFENDRS.doc</b>
	<b>2</b>	<b>Logical Framework/Project Planning Matrix</b>	<b>LOGFRAME.doc</b>
	<b>3</b>	<b>Indicative Project Work Plan</b>	<b>WORKPLAN.doc</b>
	<b>4.1</b>	<b>Incremental Cost Analysis</b>	<b>INCLCOST.doc</b>
	<b>4.2</b>	<b>Project Budget</b>	<b>BUDGET.doc</b>
	<b>5</b>	<b>STAP Review and Response</b>	<b>STAP_REV.doc</b>
<b>Optional Annexes</b>	6	Project Implementation Arrangements/Stakeholder Participation Summary	IMPLMNTN.doc
	7	Socio-economic field report and evaluation of Makran Coastal Wetlands Complex	SER_MCWC.doc
	8	Socio-economic field report and evaluation of Central Indus Wetlands Complex	SER_CIWC.doc
	9	Socio-economic field report and evaluation of Salt Range Wetlands Complex	SER_SRWC.doc
	10	Socio-economic field report and evaluation of North-west Alpine Wetlands Complex	SER_NAWC.doc
	11	Biodiversity field report and evaluation of Makran Coastal Wetlands Complex	BDR_MCWC.doc
	12	Biodiversity field report and evaluation of Central Indus Wetlands Complex	BDR_CIWC.doc
	13	Biodiversity field report and evaluation of Salt Range Wetlands Complex	BDR_SRWC.doc
	14	Biodiversity field report and evaluation of North-west Alpine Wetlands Complex	BDR_NAWC.doc
	<b>15</b>	<b>The classified status of higher vertebrate Biota of Wetlands in Pakistan</b>	<b>REDLIST.doc</b>
	16	Terrestrial and aquatic reptiles of the Makran Coastal Wetlands Complex – GIS output	REP_MCWC.doc
	17	Terrestrial and aquatic reptiles of the Central Indus Wetlands Complex – GIS output	REP_CIWC.doc
	18	Terrestrial and aquatic reptiles of the Salt Range Wetlands Complex – GIS output	REP_SRWC.doc
	19	Terrestrial and aquatic reptiles of the North-west Alpine Wetlands Complex – GIS output	REP_NAWC.doc
	20	Amphibian and reptile summary for PWP Wetlands Complexes	REPTLSUM.doc
	21	Birds of the Makran Coastal Wetlands Complex – GIS output	AVI_MCWC.doc
22	Birds of the Central Indus Wetlands Complex – GIS output	AVI_CIWC.doc	

<sup>1</sup> Available upon request from WWF-Pakistan, printed copies or electronic files in MS-Word? or PDF format.

Optional Annexes	#	Annex Title <sup>2</sup>	Computer Filename
	23	Birds of the Salt Range Wetlands Complex – GIS output	AVI_SRWC.doc
	24	Birds of the North-west Alpine Wetlands Complex – GIS outputs	AVI_NAWC.doc
	25	Terrestrial and aquatic Mammals of the Makran Coastal Wetlands Complex– GIS outputs	MAM_MCWC.doc
	26	Terrestrial and aquatic Mammals of the Central Indus wetlands Complex– GIS outputs	MAM_CIWC.doc
	27	Terrestrial Mammals of the Salt Range Wetlands Complex – GIS outputs	MAM_SRWC.doc
	28	Terrestrial and aquatic Mammals of the North-west Alpine Wetlands Complex – GIS outputs	MAM_NAWC.doc
	29	Marine and aquatic Mammals of the Makran Coastal Wetlands Complex – GIS outputs	MAR_MCWC.doc
	30	Abridged Data summary for Current Ramsar Sites in Pakistan	RAMSAR.doc
	31	Project Co-ordinating Mechanism and Staff Organisational Chart	ORGCHRT2.doc
	32	Accommodation of Changes to Project proposal suggested by PSC	FEEDBACK.doc
	33	Cost estimates for the Government Component of Field Surveys for the Pakistan Wetlands Project	GOP_RATE.doc
	34	Cost estimates for the Attendance of Government Officers at Steering and Conservation Committee Meetings	MEETRATE.doc
	35	Stakeholder Involvement by Project Outputs	STAKEHLD.doc
	36	Species/endemism in major plant and animal taxa in Pakistan	ENDEMISM.doc
	37	The occurrence of Wetlands that are designated protected areas in PWP demonstration sites	PA_WETLD.doc
38	Comprehensive list of Acronyms and Abbreviations	ACRONYM.doc	

### List of Maps

	#	Map Title	Computer Filename
Maps	1	Location map of PWP demonstration sites.	DEMSITES.JPG
	2	Distribution map of the recorded natural wetlands of Pakistan.	PAKWETLD.JPG
	3	Site map 1: Makran Coastal Wetlands Complex.	MAP_1.JPG
	4	Site map 2: Central Indus Wetlands Complex.	MAP_2.JPG
	5	Site map 3: Salt Range Wetlands Complex.	MAP_3.JPG
	6	Site map 4: North-west Alpine Wetlands Complex.	MAP_4.JPG
	7	Distribution and population density of the Indus River Dolphin in April, 2001.	R_DOLPHIN.JPG
	8	Distribution of migratory birds of Pakistan.	BIRDMIGR.JPG

<sup>2</sup> Available upon request from WWF-Pakistan, printed copies or electronic files in MS-Word? or PDF format.

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## Endnotes

<sup>1</sup> Cox and Moore, 1993

<sup>2</sup> Khurshid, 2000

<sup>3</sup> World Bank projection, 2002

<sup>4</sup> Ahmad and Niazi, 1988

<sup>5</sup> World Bank Statistics

<sup>6</sup> The Convention on Wetlands of International Importance held in Iran in 1971.

<sup>7</sup> A Tehsil is the lowest administrative jurisdiction in Pakistan.

<sup>8</sup> A *Tehsil Nazim* is an elected representative at the *Tehsil* level

<sup>9</sup> Khurshid, 2000

<sup>10</sup> Karpowicz, 1985

<sup>11</sup> Federal Bureau of Statistics, 2001