



Third National Report
on
implementation of
Convention on Biological Diversity
(CBD)
in Pakistan

Directorate of Biodiversity
Ministry of Environment
Government of Pakistan

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A. REPORTING PARTY

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Information on the preparation of the report

Box I.

Please provide information on the preparation of this report, including information on stakeholders involved and material used as a basis for the report.

Realizing the importance of the complexities related to the subject matters related to the CBD, the Ministry of Environment established a separate Directorate of Biodiversity in June 2005. The process of the preparation of the Third report was initiated during December 2005. Extensive consultations were made with different Wings of the Ministry of Environment including: the Forestry Wing, Zoological Survey of Pakistan (ZSD), and the National Council for the Conservation of Wildlife (NCCW), Pakistan Forest Institute Peshawar and the office of the Inspector General of forests (CBD Focal Point) as well as the Environmental Protection Agency (Pak-EPA) on the format of the Report. Meetings were arranged with the provincial heads of the forestry and other departments. Consultations were made with various Ministries and R & D institutions. Focus group meetings with various experts were also arranged in the provinces. The first draft was widely circulated in the provinces, federal and provincial R & D organizations and the academia. A total of about 175 individuals and some 40 organizations were consulted and their comments were invited. The comments were incorporated in the second draft that was again circulated to all the experts and organizations. Finally, a national level consultative workshop was convened in Islamabad on 4th May 2006. Participants deliberated on each section of the report in small groups. The group findings were shared in the plenary. The post workshop draft was again shared with the sectoral experts and the report was finalized. During this process, there was a wide recognition that this exercise created wide ranging awareness, and had built organizational capacities.

The keen interest and funding of UNEP helped to complete the task in a meaningful manner.

B. PRIORITY SETTING, TARGETS AND OBSTACLES

Box II.

Please provide an overview of the status and trends of various components of biological diversity in your country based on the information and data available.

1. CURRENT STATUS

Pakistan occupies a land area of over 880,000 square kilometers and forms part of the south Asian subcontinent. It is bordered by India on the East, China on the northeast and Iran and Afghanistan on the West. The country is characterized by significant variations in altitude and topography across its territory. Pakistan's diversity extends to its climatic, socioeconomic and environmental characteristics that differ significantly from region to region. The country has four provinces, the Punjab, the North Western Frontier Province (NWFP), Sindh, Balochistan, and the two federally administered territories: the Federally Administered Tribal Areas (FATA) and the Northern Areas. In addition, the territory of Azad Jammu and Kashmir (AJK), is under the administration of the Government of Pakistan. Each province or territory is further divided into administrative units known as districts.

Pakistan's coastline with the Arabian Sea stretches to over 990 km. It consists of two distinct units in terms of physiographic outline and geological characteristics. Pakistan with a population of 150 million, expected to rise to 210 million by 2025, is the eighth most populous country of the world. According to Koppen Geiger classification of climatic zones, where zones are defined based on monthly temperature and precipitation data there are 11 distinct as well as overlapping climatic zones in the country. Agriculture contributes to about 24% of the GDP and provides employment to 48.4 % of the labor force (EAW 2003), out of which the share of forestry is 0.8 percent (EAW 2003). The Pakistan Agriculture Research Council (PARC) has divided the country into ten agro ecological zones based on physiographic characters. Almost a third of the area of the country is classified as rangeland; these rangelands support two thirds of the entire population of sheep and goats and over half of the cattle population in the country. Millions of herders and pastoralists depend on rangelands for their livelihood.

Pakistan spans a remarkable number of the world's broad ecological regions. According to various classification systems Pakistan includes examples of three of the world's eight bio geographic 'realms' (the Indo-Malayan Realm, Palaearctic Realm and Africo tropical Realm), four of the world's ten 'biomes' (the desert biome, temperate grassland biome, tropical seasonal forest biome and mountain biome) and three of the world's four 'domains' (the polar/montane domain, humid temperate domain, and dry domain).

Pakistan's sea fall biogeographically within the 'Arabian Seas Region 11'. The coastal area from Pakistan west to Somalia is considered by Hayden et al. (1984) to be the coastal-margin realm, 'Eastern Monsoon (J)'. Regarding its fauna, the Pakistani coast is considered the western-most extent of the vast Indo-Polynesian province.

2. SPECIES RICHNESS AND ENDEMISM IN PAKISTAN

Species richness is only one measure of biological diversity but the use of this parameter to assess biodiversity is limited by the fact that many species, particularly insects, fungi and micro-organisms, remain to be identified. Only a little work has so far been done to evaluate other measures of biodiversity in Pakistan, including taxonomic and functional diversity, and the amount of genetic variability within species and their sub-divided populations.

Because Pakistan is largely bounded by man-made borders and does not comprise an isolated entity in bio geographic terms, relatively few species are found only in Pakistan. Thus, Pakistan has relatively low national rates of endemism for some species (about 7% for flowering plants and reptiles, and 3% for mammals) but higher for fresh-water fish (15%). However, the proportion of 'restricted range' species occurring in Pakistan is much higher, and for many of these species, Pakistan contains the bulk of the global population. (BAP 2000)

Research on status and trends of the mammals, reptiles, birds, fishes, invertebrates, and plants and domesticated plants and animal species is spread widely in the universities, Zoological Survey Department, Pakistan Museum of Natural History (PMNH), National Institute of Oceanography (NIO) and the National Agricultural Research Centre (NARC), and also scientifically conducted through various projects all over the country. No system of coordination of such research and dissemination of results exists.

The most authentic details of species diversity available is in the Biodiversity Action Plan (BAP) (2000) and is reproduced below:

Species Richness and Endemics for Major Plant and Animal Groups in Pakistan

Taxa	Total Reported in Pakistan	Endemic	Threatened
Mammals	174	6	20
Birds	668	?	25
Reptiles	177	13	6
Amphibians	22	9	1
Fish (freshwater)	198	29	1
Fish (marine)	788	-	5
Echinoderms	25	-	2
Molluscs (Marine)	769	-	8
Crustaceans (Marine)	287	-	6
Annelids (Marine)	101	-	1
Insects	>5000	-	-
Angiosperms	5700	380	?
Gymnosperms	21	-	?
Pteridophytes	189	-	?
Algae	775	20	?
Fungi	>4500	2	?

A recent joint endeavor of Ministry of Environment and IUCN Pakistan is the development on Red Lists of different Taxa. According to 2004 Red List of Pakistan's mammals, there are a total 195 species of mammals (with few sub-species). Five taxa of mammals (2 at species level and 3 at subspecies level) are endemic to Pakistan. 44 species of mammals are threatened in the category of Critically Endangered (12), Endangered (12) and Vulnerable (20).

207 fresh water fishes were described during fresh water biodiversity assessment process-another joint exercise by Ministry of Environment and IUCN Pakistan. Out of total 207 fresh water species, 11 are endemic to the country and 11 were introduced by man into the natural waters.

3. TRENDS

The ecological trend of greatest concern in Pakistan today is the continuing loss, fragmentation and degradation of natural and modified habitats: the forest area, already greatly reduced and fragmented, is suffering further loss and degradation; most rangelands are suffering further degradation; and many freshwater and marine ecosystems have already been lost or are threatened with further destruction. Also of great concern in Pakistan today is the continuing decline in many native species of animals and plants; some species are already extinct, many are internationally threatened, and more still are of national concern. The degradation of agro-ecosystems and the accelerating loss of domesticated genetic diversity are also of grave concern in Pakistan.

4. LOSS OF NATURAL HABITATS

While the loss, fragmentation and degradation of natural habitats in the territory of Pakistan has been taking place for centuries, the last few decades have seen a particularly rapid acceleration in this process. This trend is most evident in the remaining upland forests, scrub forests and mangrove forests, arid and semi-arid rangelands (including sand dune deserts), inland wetlands, Indus Delta and coastal waters.

5. FORESTS

Forests in Pakistan cover 4.224 million ha, covering only 4.8 percent of the total surveyed area of 87.98

million ha. The percentage of forests in different provinces and territories is very different. The Northern territory of Azad Jammu and Kashmir has a forest area that comprises 20.7 percent of its total land. The North West Frontier Province (NWFP) and the Northern Areas, where forest cover 16.6 % and 9.5 % of the land area respectively, follow this. In the provinces of Punjab and Sindh, about 2.8 % and 4% of the total land area is under forest respectively. The proportion of forest area in Balochistan province is 0.7 %.

Forest vegetation in Pakistan is diverse in its structure and composition. This is due to variations in climatic and ecological conditions under the change in latitude from 24 to 37 ° N and altitude from zero, or at sea level in the south to more than 8,000 meters in the north. These changes also account for a progressive decrease in the mean annual temperature and increase in rainfall from the south towards the north.

The only monitoring that was done for forest cover and extent since the 1992 Forest Sector Master Plan (FSMP) study that covers the entire country was the ADB funded study conducted by PFI in 2003-5. This study was restricted to monitor the forest cover and extent of change since 1992.

Detailed surveys and assessment of forest resources conducted in 2003-04 by the Pakistan Forest Institute Peshawar shows that in Pakistan total area under forest cover has reduced from 3.59 m ha to 3.32 m ha between 1992 and 2001 at an average rate of 27,000 ha per annum. In the post-FSMP period, forest areas in Punjab and Azad Jammu & Kashmir have increased whereas Sindh and Balochistan have reduced. In NWFP, overall change was determined as zero. Highest rate of deforestation was detected for Northern Areas where forest cover reduced to less than half in 10 years.

There is no specific work on forest biological diversity and/ or the impacts of forest management on it. The process of the preparation of this report has raised awareness on the need to adopt the CBD work plan on forest biological diversity and address the ecosystem approach.

4. **Wetlands and coastal waters**

In the country, wetlands are of great significance for breeding, migrating and wintering waterfowl. During the migration seasons, over one million waterfowl of 108 species have been recorded as utilizing the extensive deltas, shallows and other wetlands. Being a predominantly arid and semi-arid country, Pakistan's wetlands constitute an even more valuable resource of significant economic value, on which people, domestic stock and wildlife depend for their livelihood and survival.

Pakistan's wetlands can be broadly categorized as Inland including lacustrine and palustrine ecosystems of wetlands, Riverine, and Coastal wetlands.

Some factors affecting our wetlands are identified as:

Eutrophication	Siltation
Erosion	Pollution Chemical run-off from agriculture
Land reclamation	Introduction of exotic species
Deforestation / Illegal cutting of vegetation. Forest cutting in catchment areas	Developmental projects i.e. power stations, highways, etc
Hunting/Poaching	Overexploitation of resources

Freshwater flows in Pakistan rivers have been substantially reduced by water diversion in recent decades. This has degraded and fragmented freshwater habitats, and caused increasing salinity in the Indus Delta. Many riverine wetlands have been drained and converted to agriculture. Major barrages, such as the Taunsa and Guddu Barrages, act as barriers to migrating fish and the Indus River Dolphin. This blockage of Indus River flow to the ocean by dams and barrages is considered to be the most important man-made threat to biodiversity in the marine ecosystem of Pakistan. Most of the natural lakes in Pakistan have disappeared over the last 50 years. However, several new lakes have been created upstream of dams constructed in recent years on the major rivers. Some of these have become important wintering areas for waterfowl, and these and other wetlands, particularly in the great valleys of Sindh and Punjab, are feeding grounds for large concentrations of ducks (Anatidae) and coots (Podicipitidae).

Among coastal ecosystems, mangrove forests are the most vulnerable to severe changes. Along the coast of Sindh, mangroves play an economically significant role protecting ports from excessive siltation, providing breeding grounds for commercially important penaid shrimps and fish larvae, and sanctuaries for migratory birds.

Process of developing and implementation of a strategic plan for the conservation and protection of the biodiversity of global significance in wetlands of Pakistan including the identification and classification of wetland resources, review and strengthening of institutional capacity, training and enhancing human resources capabilities in research, planning, administration and management of wetlands and their resources is underway (Pakistan Wetland Project)

6. DEPLETION OF SPECIES, POPULATIONS AND WILD GENETIC DIVERSITY

a. Extinct species

At least the following four mammal species are known to have disappeared from Pakistan within the last 400 years: Tiger (*Panthera tigris*); Lion (*Panthera leo*); Swamp Deer (*Cervus duvauceli*) and Indian One-horned Rhinoceros (*Rhinoceros unicornis*). A further two species have probably gone extinct in recent decades: Asiatic Cheetah (*Acinonyx jubatus venaticus*) and Hangul (*Cervus elaphus hanglu*). The Blackbuck (*Antelope cervicapra*) has been listed as locally extinct but has now been bred in captivity and reintroduced in Cholistan while the Asiatic Wild Ass (*Equus hemionus*) is believed to be threatened with extinction in Pakistan. (BAP 2000)

b. Internationally threatened species

The latest 'IUCN Red List of Threatened Mammals lists 44 species and 4 sub-species of internationally threatened or near-threatened mammals as occurring in Pakistan. Of these, 12 are critically endangered, 12 endangered, 20 vulnerable. The critically endangered mammals are Balochistan Black Bear (*Ursus thibetanus gedrosianus*) and Chiltan Goat (*Capra aegagrus chiltanensis*). Other endangered mammals include Indian Wolf, Snow Leopard (*Uncia uncia*), Indus River Dolphin (*Platanista gangeticus minor*), Markhor (*Capra falconeri*), Urial (*Ovis vignei*), and Woolly Flying Squirrel (*Eupetaurus cinereus*)

Internationally threatened bird species occurring in Pakistan include 25 internationally threatened (one critically endangered, two endangered, 22 vulnerable) and 17 internationally near-threatened bird species. The critically endangered bird is the Lesser Florican (*Eupodotis indica*), while the Siberian Crane (*Grus leucogeranus*) and Great Indian Bustard (*Ardeotis nigriceps*) are listed as endangered.

Ten internationally threatened reptiles occur in Pakistan (three endangered, three vulnerable, three near-threatened and one data deficient), but there are no internationally threatened amphibians. (BAP 2000)

c. Degradation of Agro-ecosystems and Domestic Genetic Diversity

Pakistan's agro-ecosystems are experiencing a number of trends damaging to biodiversity. These include soil loss, water logging, salination, intensification of production, and the increased use of pesticides. Soil degradation, water logging, and salination all reduce the productivity of agricultural lands, reducing the capacity of these lands to sustain soil micro-organisms, invertebrates and higher trophic levels, and indirectly placing greater human demand on natural biodiversity resources. Intensification reduces floral and faunal diversity in crops and field margins.

Globally, the genetic diversity of many crops is eroding. This is mainly due to the development during this century of very uniform cultivars, grown in very uniform environments, created by using the same sophisticated agricultural practices throughout. The spread of cultivars in Pakistan is expected to lead to an erosion of primitive crop genetic variety. It is estimated that more than 90% of primitive cultivars/land races of major food crops in Pakistan has already disappeared.(BAP 2000)

d. Critically Threatened Ecosystems

Given the widespread historic conversion of natural ecosystems to agriculture in Pakistan, the already highly advanced and rapidly accelerating depletion of habitats, and the continuing depletion of species and populations, almost all remaining natural or modified ecosystems in Pakistan are now critically threatened.

No systematic and comprehensive assessment has yet been made with the aim of objectively ranking the biodiversity importance of Pakistan's remaining natural ecosystems and habitats. However, based on various reports and the opinions of recognized authorities at least ten ecosystems of particular value for their species-richness and/or unique communities of flora and fauna are threatened with habitat loss and degradation. Given their biodiversity importance and the high level of threat, these ecosystems are considered to be of critical concern for conservation.(BAP 2000)

7. ACTIVITIES CAUSING HABITAT LOSS

Loss of habitats is the principal cause of the present high rate of global extinctions, and poses a severe threat in all biomes. There is no 'safe', non-trivial level of habitat loss which would not increase the risk of extinction of some species. No network of carefully selected reserves would suffice to protect all species. Changes in habitat quality, while less extreme than habitat loss, affect plant and animal populations. For

many species, the consequences of even subtle changes in habitat quality can be confidently predicted from existing knowledge of their habitat requirements. Habitat fragmentation increases the risk of extinction by isolating small pockets of previously more connected populations. Small, isolated populations are more vulnerable to the loss of genetic variability, and run a greater risk of extinction. Little has changed in reporting on this issue since BAP 2000, the main issues are listed as under:

- Deforestation
- Grazing and fodder collection
- Soil Erosion
- Water Diversion

8. **ACTIVITIES CAUSING SPECIES OR POPULATION LOSS**

Globally, many extinctions have resulted from human over-exploitation for food through hunting and collection. The search for precious commodities and for zoo specimens, medicinal plants, etc., has also impinged on some populations and obliterated others. The following have been identified as the major causes of loss of species:

Activity	Species/Groups affected
Illegal hunting	Most ungulates, game birds, waterfowl
Prosecution (in response to livestock/ crop losses)	All predators including (brown bear, black bear, grey wolf, snow leopard, common leopard, leopard cat, wild pig, rhesus macaque)
Falconry	Saker falcon, Peregrine falcon
Domestication	Cranes, rhesus macaque, parrot, bear.
Medicinal purposes	Rhesus macaque, bear, musk deer, dolphin, pelican, lizard
Decoration	Most felids, mustelids (fur), ungulates (trophies), crocodile, snake, (skins) turtle, (shells, oils) pheasant (feathers)

(Source: GoP, WWF-P & IUCN 2000)

Priority Setting

1. Please indicate, by marking an "x" in the appropriate column below, the level of priority your country accords to the implementation of various articles, provisions and relevant programmes of the work of the Convention.

Article/Provision/Programme of Work	Level of Priority		
	High	Medium	Low
a) Article 5 – Cooperation	x		
b) Article 6 - General measures for conservation and sustainable use	x		
c) Article 7 - Identification and monitoring		x	
d) Article 8 – <i>In-situ</i> conservation	x		
e) Article 8(h) - Alien species			X
f) Article 8(j) - Traditional knowledge and related provisions		x	

g) Article 9 – <i>Ex -situ</i> conservation		X	
h) Article 10 – Sustainable use of components of biological diversity		x	
i) Article 11 - Incentive measures		X	
j) Article 12 – Research and training		X	
k) Article 13 - Public education and awareness		x	
l) Article 14 - Impact assessment and minimizing adverse impacts		x	
m) Article 15 - Access to genetic resources			X
n) Article 16 - Access to and transfer of technology		x	
o) Article 17 - Exchange of information		X	
p) Article 18 – Scientific and technical cooperation		x	
q) Article 19 - Handling of biotechnology and distribution of its benefits		x	
r) Article 20 – Financial resources		x	
s) Article 21 – Financial mechanism		x	
t) Agricultural biodiversity	x		
u) Forest biodiversity		x	
v) Inland water biodiversity			X
w) Marine and coastal biodiversity		X	
x) Dryland and subhumid land biodiversity		x	
y) Mountain biodiversity	x		

Challenges and Obstacles to Implementation

2. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the provisions of the Articles of the Convention (5, 6,7, 8, 8h, 8j, 9, 10, 11,12, 13, 14, 15,16, 17, 18, 19 and 20)	
3 = High Challenge	1 = Low Challenge
2 = Medium Challenge	0 = Challenge has been successfully overcome

N/A = Not applicable

Challenges	Articles																		
	5	6	7	8	8h	8j	9	10	11	12	13	14	15	16	17	18	19	20	
a) Lack of political will and support	2	1	2	1	2	1	1	1	1	1	1	1		1	1	1	1	1	
b) Limited public participation and stakeholder involvement	1	2	2	2	2	2	2	2	1	1	1	1	2	1	2	2	3	3	
c) Lack of mainstreaming and integration of biodiversity issues into other sectors	3	3	3	1	1	1	1	2	2	1	1	2	2	2	2	2	2	2	
d) Lack of precautionary and proactive measures	3	3	2	1	3	1	2	2	2	2	1	2	2	2	1	1	2	2	
e) Inadequate capacity to act, caused by institutional weakness	2	2	3	3	3	3	2	3	3	1	1	3	2	3	3	3	3	3	
f) Lack of transfer of technology and expertise	2	2	2	2	2	1	2	3	2	1	3	2	2	2	2	2	3	3	
g) Loss of traditional knowledge	2	1	2	2	2	2	N/A	2	3	1	1	2	2	1	3	2	N/A	N/A	
h) Lack of adequate scientific research capacities to support all the objectives	2	2	2	2	3	3	3	2	2	2	1	2	2	2	3	3	3	N/A	
i) Lack of accessible knowledge and information	2	2	3	2	2	3	2	2	2	2	2	2	2	2	3	3	2	2	
j) Lack of public education and awareness at all levels	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
k) Existing scientific and traditional knowledge not fully utilized	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
l) Loss of biodiversity and the corresponding goods and services it provides not properly	2	3	3	3	3	2	N/A	1	2	N/A	1	2	N/A	2	2	3	2	2	

understood and documented																		
m) Lack of financial, human, technical resources	3	3	3	2	3	3	3	2	3	2	2	2	2	2	2	2	3	3
n) Lack of economic incentive measures	3	3	3	3	3	3	3	3	3	1	2	2	2	2	2	3	3	3
o) Lack of benefit-sharing	3	1	3	2	3	2	2	2	2	2	2	1	0	1	2	2	2	2
p) Lack of synergies at national and international levels	3	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
q) Lack of horizontal cooperation among stakeholders	3	2	2	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1
r) Lack of effective partnerships	2	2	2	2	1	2	1	2	2	1	2	2	1	1	2	1	1	2
s) Lack of engagement of scientific community	2	2	2	2	2	2	1	3	2	1	2	2	2	2	2	2	2	2
t) Lack of appropriate policies and laws	3	1	2	2	3	3	2	2	1	1	1	2	2	1	1	1	1	1
u) Poverty	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
v) Population pressure	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
w) Unsustainable consumption and production patterns	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
x) Lack of capacities for local communities	3	3	3	3	3	3	2	2	2	N/A	2	3	3	3	2	2	3	3
y) Lack of knowledge and practice of ecosystem-based approaches to management	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
z) Weak law enforcement capacity	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
aa) Natural disasters and environmental change	3	2	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1
bb) Others (please specify)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2010 Target

The Conference of the Parties, in decision VII/30, annex II, decided to establish a provisional framework for goals and targets in order to clarify the 2010 global target adopted by decision VI/26, help assess the progress towards the target, and promote coherence among the programmes of work of the Convention. Parties and Governments are invited to develop their own targets with this flexible framework. Please provide relevant information by responding to the questions and requests contained in the following tables.

Box III.

Goal 1	Promote the conservation of the biological diversity of ecosystems, habitats and biomes.		
Target 1.1	At least ten percent of each of the world's ecological regions effectively conserved		
I) National target: Has a national target been established corresponding to the global target above?			
No			
Yes, the same as the global target			
Yes, one or more specific national targets have been established			X
Please provide details below.			
Targets not formally set, realizing the gaps the Government of Pakistan has created a new Biodiversity Directorate in 2005 and the process of preparation of the Third Report has created awareness to address the issue of setting global targets. Some targets that overlap with the MDGs like the establishment of Protected Areas (12 % of the total area) have been achieved.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
Forest		x	No targets for forest biodiversity have been set in the strict sense for the implementation of Decision VI/22. However, the sense of the Ecosystem Approach, mitigation of the threats to forests, to restore degraded forests, promotion of sustainable use (based on sustained yield concept of forest management), increased public participation and awareness stand incorporated in various activities, plans and policies of the provinces. The Expanded Work Programme on Forest biodiversity has been communicated to all the provinces and it is expected that Pakistan would be in a position to report its progress in the review due in the ninth meeting of the COP in 2008.
e) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			

a) No	x
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	
Please provide details below.	
<p>The Pakistan Environmental Policy (PEP) 2005 has been approved. PEP has sections on Biodiversity conservation and sustainable use, the Global targets 2010 are yet to be addressed in the PEP. Efforts are under way to influence the Sector policies like the draft policy on fisheries to incorporate Biodiversity issues. Ministry of Food, Agriculture and Livestock is finalizing the Pakistan Fisheries Policy 2006 with the assistance of FAO under a Technical Cooperation Program (TCP). Efforts are under way to influence other sector policies. The National Environmental Policy 2005 has been approved that has elements on Biodiversity. The National forest policy is under discussion. The provinces of the Punjab and the NWFP have approved their respective forest policies.</p>	
IV) Please provide information on current status and trends in relation to this target.	
Efforts are under way to influence sector policies to incorporate the global targets.	
V) Please provide information on indicators used in relation to this target.	
<p>Indicators on species composition, status and trends of mountain biodiversity have been developed under the Mountain Area Conservation Project (MACP) for five conservancies in the Northern Areas and the North Western frontier Province. Indicators are developed for each biodiversity conservation related project, which are equally applicable towards gauging the progress achieved on this target.</p>	
VI) Please provide information on challenges in implementation of this target.	
Capacity and continuity of the efforts in dealing with these issues remain a major challenge in developing and implementation of the targets and their indicators	
VII) Please provide any other relevant information.	
<p>Influencing the sector policies, Ministries and provincial departments on biodiversity conservation, sustainable use and equitable benefit sharing issues specifically the global targets is a daunting challenge that needs to be addressed. The problem is exacerbated when in house capacity also needs to be enhanced.</p>	

Box IV.

Target 1.2	Areas of particular importance to biodiversity protected		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
<p>The Protected Area network in Pakistan include most of the areas of particular importance to biodiversity. Efforts are made to protect the biodiversity through management and community involvement.</p> <p>Isolated efforts have been made to achieve the three targets of the Convention by the government agencies and the NGOs however; efforts are needed to harmonize the efforts with the aim of achieving the global targets. GEF funded projects like the Mountain Areas Conservation Project (MACP), the World Bank funded Protected Areas Management Project (PAMP) and the latest pipeline project for the conservation of Juniper forests in Balochistan indirectly contribute to achieve the global 2010 targets.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).			
Programme of work	Yes	No	Details

a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			x
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
12 percent of the total area has been declared as protected			
IV) Please provide information on current status and trends in relation to this target.			
The MDG target of Protected Areas (PA) has been set and the government has notified additional Protected Areas in accordance with its commitments.			
V) Please provide information on indicators used in relation to this target.			
Indicators have been established in case of some National Parks and donor funded projects			
VI) Please provide information on challenges in implementation of this target.			
<p>The management of protected areas is a provincial subject while the federal government influences the provinces through the National Council for the Conservation of Wildlife and the Federal Forestry Board meetings. No specific fora exist for influencing other sectors like agriculture, livestock, fisheries, biotechnology etc. However, the Ministry of Environment can request other Government Agencies for some specific action. Influencing biodiversity related sectors remains a challenge for which experience of other parties would be helpful.</p>			
VII) Please provide any other relevant information.			
<p>An effort has been made by the IUCN to review the Protected Area system in Pakistan. 56 additional areas were recognized. These areas will ultimately be brought in the ambit of PA system.</p> <p>The pace of development towards determination of areas of particular importance to biodiversity conservation comes under the purview of the organizational subunit within the Ministry of Environment (Biodiversity Directorate) established to address this task specifically. This organizational unit needs to be organized so as to have continuous data recording system for periodic provision of relevant information on the issue. Other units like Pakistan Forest Institute, Zoological Survey Department, National Agricultural Research Centre and Pakistan Museum of Natural History are required to be strengthened. The National Forestry Programme Facility (NFP) is under implementation with support from the FAO (2004-2007). Under the NFP a series of consultative workshops on forest policy fora for input, implementation, monitoring, composition and representation was held in select districts and provincial headquarters the overall consensus was that forest policy fora need to be established; forest biological diversity conservation was identified as one of the TORS of such fora.</p>			

Box V.

Goal 2	Promote the conservation of species diversity		
Target 2.1	Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
<p>Even though the targets have not been established, the Government/s and conservation NGOs are working towards this end. The establishment of Protected Areas is a step towards the conservation of species diversity. Moratorium on forest harvesting, management of rangelands on modern scientific principles (Punjab) or following the age-old traditional system (Balochistan) also ensures the conservation of species diversity. Laws made by the Provincial Governments protect endangered species. Donor funded projects also have the object of the conservation of species diversity.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
Inland water		x	To prevent decline of fish population i.e., local carp fish the provincial fisheries departments and the Water and Power Development Authority (WAPDA) in the dams under its control are exercising vigil regarding seasonal size & species-specific restrictions. The departments are also carrying out fish seed stock replenishment programs in different water regimes to prevent decline due to over harvesting. Indus dolphin conservation programmes are in operation.
b) Marine and coastal		x	
c) Dry and subhumid land		x	Steps have been taken to check the degradation of habitat and decline of wildlife species.
d) Forest	x		Steps have been taken to check the degradation of habitat and decline of wildlife species. Afforestation, reforestation and harvesting targets are fixed in the Management Plans of Forests; these plans however do not address restoration and or conservation of species diversity. The PAs declared over forest areas are notified under the Wildlife laws and have hardly any bearing on forest management practices.
e) Mountain		x	Steps have been taken to check the degradation of habitat and decline of wildlife species. Donor funded projects have been started in the mountainous areas to conserve the species diversity.
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			

a) No	x
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	
Please provide details below.	
No targets for specific taxonomic groups have been set, however all taxonomic groups are conserved as part of the overall Protected Area system that have been established under the wildlife laws.	
IV) Please provide information on current status and trends in relation to this target.	
<p>There is no regular national system of surveys of specific taxonomic groups to ascertain their occurrence. However efforts are made for regular monitoring of water fowl, the Indus dolphins, mammals (for the IUCN Data book), regular surveys of big game animals like Markhor (<i>Capra falconeri</i>), Urial (<i>Ovis vignei</i>), Ibex (<i>Capra ibex</i>), Houbara bustard (<i>Chlamydotis undulata</i>) and falcons. The Zoological Survey Department has initiated a project for regular monitoring of the fauna under a Public Sector Development Project. The provisions for international trade in wild flora and fauna under provisions of CITES are fully implemented. Efforts to re-introduce extinct species like the black buck in Cholistan are also under way. Some surveys for vultures have been conducted since 1999-2000 after the large scale deaths of white backed vultures (<i>Gyps bengalensis</i>) was reported in Kundian Irrigated Plantation of district Minawali. Plant taxonomic surveys are undertaken while formulating Management Plans for particular PAs</p> <p>In addition the depleting stocks of different fish species particularly Mahseer are restocked in nature enabling to achieve the conservation target.</p>	
V) Please provide information on indicators used in relation to this target.	
<p>Subsequent surveys undertaken to assess the status of biodiversity are taken as the indicators of the success or otherwise of the efforts made by the conservation agencies.</p> <p>Ibex and Urial population in Khirthar National Park of Sindh are used as indicator for assessment of population trend. In 1974 when the park was established, population of these species was in few hundreds. Whereas according to recent survey, number of Ibex is 12000 and that of Urial is 8000 in the Park.</p> <p>Frequency of sightings and animal / livestock depredation is also used as indicators.</p>	
VI) Please provide information on challenges in implementation of this target.	
Weak law enforcement capacity, lack of knowledge and practice of ecosystem based approach to management are major challenges	
VII) Please provide any other relevant information.	
The capacity is required to be built of all the stakeholders. Data on agricultural biodiversity, forest biodiversity, inland water biodiversity, marine and coastal biodiversity, dryland and subhumid biodiversity and mountain biodiversity is available whereas there is a dearth of data on marine ecosystems.	

Box VI.

Target 2.2	Status of threatened species improved
I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	X
Please provide details below.	
Even though the specific targets have not been fixed, all efforts are made towards improving the status of threatened species e.g. Markhor and common leopard populations have improved as a result of steps taken by the Government and NGOs.	

Extensive Research is being carried out on artificial breeding of threatened fish species including Mahseer, Kalbans, Singhari & Soul for restocking in nature to improve their natural population

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	The fisheries department has introduced development projects to get progeny of threatened species i.e., Mahseer, Kalbans, Singhari, Soul etc. the objectives of the scheme is to introduce fingerlings of these species in water systems to enhance threatened fish species population. Hunting on important wetlands is strictly controlled to conserve waterfowl populations.
c) Marine and coastal		x	PAs have been established to conserve and improve the status of threatened species e.g. Hingol National Park (HNP)
d) Dry and subhumid land		x	As above e.g., Hingol National Park
e) Forest		x	Forest dwelling species are also protected.
f) Mountain		x	A chain of PAs has been established in the mountainous areas. The status of many species has improved.

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No

b) Yes, into national biodiversity strategy and action plan

c) Yes, into sectoral strategies, plans and programmes

x

Please provide details below.

Establishment of protected area targets (12% of total area) has been achieved.

IV) Please provide information on current status and trends in relation to this target.

After the notification of Protected Areas, there is a trend of increase in population of big game mammals. The sharp decline in the Indus dolphin population has been halted and there is an apparent increase in the population of the common leopards in Ayubia National Park The declining trend in the population of threatened fish species has been halted and presently reached sustainable level.

V) Please provide information on indicators used in relation to this target.

Improvement in the status of a particular species is taken as the indicator e.g. Improvement in the population of Common leopard and Snow leopard.

VI) Please provide information on challenges in implementation of this target.

Capacity, funding, informed civil society and coordination amongst various data providers and users remains a major challenge. Lack of precautionary measures, limited public participation and stakeholder involvement, lack of public education and awareness, poverty, population pressure and weak law enforcement are major challenges.

VII) Please provide any other relevant information.

Box VII.

Goal 3	Promote the conservation of genetic diversity		
Target 3.1	Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			X
Please provide details below.			
<p>The Plant Genetic Resources Institute at National Agricultural Research Council (NARC) promotes the conservation of plant genetic resources in situ and ex situ. There is little sensitization for the conservation of associated indigenous and traditional knowledge. Efforts are made to conserve the diversity of livestock breeds by conserving the semen and promotion of local breeds.</p> <p>The Fisheries Department is carrying out research for conservation of aquatic environment against pollution thus conserving the genetic diversity (fish, zooplankton, phytoplankton etc.) it supports.</p> <p>Two federally funded projects are under implementation in the NWFP and AJK on conservation of indigenous tree species; these projects were conceived due to the realization that in the quest for fast growing trees (1980's-90's) the traditional knowledge of raising local trees has been lost. These projects envisage bringing back local tree saplings in the forest nurseries that are dominated by exotics.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water	x		The Fisheries Department is carrying out research for conservation of aquatic environment against pollution thus conserving the genetic diversity (fish, zooplankton, phytoplankton etc.) it supports.
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			x
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
<p>The draft Access and benefit sharing and the Plant Breeders laws have been prepared that are undergoing consultations. The Plant Genetic resources Institute has established gene banks for crops, gene banks for trees have not been established. However the local breeds of livestock are</p>			

being conserved by the Livestock departments in the livestock farms established for this specific propose. A project for the conservation of local breeds of poultry has also been implemented by the Punjab Livestock Department

The Fisheries Department is carrying out research for conservation of aquatic environment against pollution thus conserving the genetic diversity (fish, zooplankton, phytoplankton etc.) it supports.

IV) Please provide information on current status and trends in relation to this target.

There is a general increased awareness for conservation of genetic resources, lately the corporate sector has also started to take part in the conservation issues e.g. A Biodiversity Park has been established by Attock refinery Ltd and Pakistan Tobacco Company is also planning to conserve tree seed/ species diversity. Status is being improved gradually. However, no regular system to assess loss of diversity and traditional knowledge is in place.

V) Please provide information on indicators used in relation to this target.

VI) Please provide information on challenges in implementation of this target.

Lack of coordination, financial resources and awareness remain a main bottleneck in this regard

VII) Please provide any other relevant information.

Box VIII.

Goal 4	Promote sustainable use and consumption.		
Target 4.1	Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
The Mountain Areas Conservation Project (MACP) has taken some steps for the marketing of products derived from sustainable managed ecosystems e.g. the sea-buckthorn edible jams and jellies, The National Rural Support Programme promotes buckwheat flour. NWFP Forest department has started programme for sustainable harvesting of Chilgoza pine nuts and various other Non-timber forest products (NTFP).			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	Fish farming is becoming popular in the Provinces as natural resources are being depleted. This has helped reduce pressure on natural fish resources. The latest Fisheries policy has sections on conservation of biodiversity.
c) Marine and coastal		x	Marine fisheries is being regulated to conserve the resource.

d) Dry and subhumid land		x	
e) Forest		x	Forests are managed on sustained yield basis.
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			x
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
There is a need to coordinate the isolated work done by various governmental agencies, projects, NGOs and the corporate sector.			
IV) Please provide information on current status and trends in relation to this target.			
V) Please provide information on indicators used in relation to this target.			
VI) Please provide information on challenges in implementation of this target.			
Lack of awareness, financial resources, coordination and coherence remain the major challenges			
VII) Please provide any other relevant information.			
In Sindh, controlled hunting under law is carried out every year. Similarly, big game has been allowed in all the four provinces through community based organizations (CBOs) and the proceeds realized thereof are used for the welfare of community, conservation of wildlife and revenue for the government exchequer. This type of experience is present in all the four provinces.			
Non Timber Forest products (NTFP) collection on subsistence basis is encouraged and covered under relevant forest laws of the provinces.			

Box IX.

Target 4.2	Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			x
Please provide details below.			
No specific targets for unsustainable consumption of all the components of biological resources in accordance with the CBD 2010 Global targets have been set. However, specific targets for trophy hunting of big game in accordance with the quotas approved by CITES are strictly followed.			
No specific plan has been made to conserve fresh water fish species. However, the generalized rules as appropriate to other fish regarding season closure and restriction on catch size applies to these species as well. Fish harvest from marine and coastal areas is also regulated.			
For forest resources, the government of Pakistan has put a complete ban on commercial harvesting			

of natural forests. Mangrove forests are being used for grazing mainly camels however, no specific measures are taken for justifiable resource utilization or sustainable use.

The provincial forestry departments (Punjab specifically) manage the grazing lands on rotational grazing systems, at specific sites grazing permits are issued. The carrying capacity of rangelands forms the basis of all grazing control programs. Rangelands in Balochistan are mostly community owned. In livestock production areas, traditional systems of grazing are in place that almost follow the scientific principles of range management.

Medicinal plants are regularly exploited without any regulatory measure. However, some legislative measures have been proposed in the Northern Areas. Such measures may be followed in other provinces as well. CITES Appendix I Medicinal Plant species are however not allowed to be harvested and if harvested illegally are not allowed to be exported.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	The Punjab Fisheries Department is exercising full vigilance under Fisheries enactment to control fish catches in closed season and restrict the catch size of prohibited species. The commercial fish farming established under supervision of Fisheries Department has reduced the impact of unsustainable consumption of biological resources and biodiversity.
c) Marine and coastal		x	
d) Dry and subhumid land		x	Protection and conservation of biodiversity is being ascertained
e) Forest		x	Steps have been taken for the sustainability of the forests
f) Mountain		x	Measures have been taken to check erosion and preserve fauna and flora

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	x

Please provide details below.

IV) Please provide information on current status and trends in relation to this target.

The impact of ban on commercial harvesting of forests has to be assessed on regular basis. The Detailed surveys and assessment of forest resources conducted in 2003-04 by the Pakistan Forest Institute Peshawar reported that in Pakistan total area under forest cover has reduced from 3.59 m ha to 3.32 m ha between 1992 and 2001 at an average rate of 27000 ha per annum. In the post-FSMP period, forest areas in Punjab and Azad Jammu & Kashmir have increased whereas in Sindh and Balochistan have reduced. In NWFP, overall change was determined as zero (Forest Department NWFP has however shown some reservations on these surveys). Highest rate of deforestation was detected for Northern Areas where forest cover was reduced to less than half in 10 years.

The trophy hunting program for Markhor and Ibex has shown a trend of increase in population of these species.

The status and trends of the marine and freshwater species diversity is data deficient.

V) Please provide information on indicators used in relation to this target.
VI) Please provide information on challenges in implementation of this target. Lack of coordination, financial resources and awareness remain a main bottleneck in this regard
VII) Please provide any other relevant information. NWFP has introduced participatory wildlife management and declared conservancies in communities and Reserves to ensure sustainable use of wildlife.

Box X.

Target 4.3	No species of wild flora or fauna endangered by international trade		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			x
c) Yes, one or more specific national targets have been established			
Please provide details below.			
Pakistan has put a ban on commercial export of mammals, reptiles and protected birds strictly in accordance with CITES provisions. In addition, commercial export of CITES Appendix I and II species, other than captive bred is on negative list. Report of some illegal trade in reptiles captured in Chagai district of Balochistan may pose a threat to the diversity of faunal species. The Government has escalated its efforts to stop such practices.. A GEF financed project has been started in the area to run an awareness campaign and organize communities to help stop such trade, and conserve the diversity of reptiles in the area.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			x
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
Only for CITES listed species			

IV) Please provide information on current status and trends in relation to this target.
V) Please provide information on indicators used in relation to this target.
VI) Please provide information on challenges in implementation of this target. Lack of coordination, financial resources and awareness remain a main bottleneck in this regard
VII) Please provide any other relevant information. Falcon trade and export of falcons has been banned.

Box XI.

Goal 5	Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.		
Target 5.1	Rate of loss and degradation of natural habitats decreased		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			x
c) Yes, one or more specific national targets have been established			
Please provide details below.			
The Protected areas established in Pakistan by default imply the conservation of the wildlife and habitat. All efforts are made to halt the loss of natural habitats. The legal provisions for national parks prohibit any land use change. Water policy has been framed to regulate the water use and utilize the water resources in a sustainable manner.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	Forestlands face a major challenge of land use change as the pressure increases for change of land use from forest to non-forest uses.
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			

c) Yes, into sectoral strategies, plans and programmes	x
Please provide details below.	
<p>The impact of ban on commercial harvesting of forests has to be assessed on regular basis. The Detailed surveys and assessment of forest resources has been conducted in 2003-04 by the Pakistan Forest Institute Peshawar reported that in Pakistan total area under forest cover has reduced from 3.59 m ha to 3.32 m ha between 1992 and 2001 at an average rate of 27000 ha per annum. In the post- (Forestry Sector Master Plan 1992) FSMP period, forest areas in Punjab and Azad Jammu & Kashmir have increased whereas Sindh and Balochistan have reduced. In NWFP, overall change was determined as zero(Forest Department NWFP has however shown some reservations on these surveys). Highest rate of deforestation was detected for Northern Areas where forest cover reduced to less than half in 10 years.</p> <p>The trophy-hunting program for Markhor and IbeX has shown a trend of increase in population of these species. The status and trends of the marine and freshwater species diversity is data deficient.</p>	
IV) Please provide information on current status and trends in relation to this target.	
V) Please provide information on indicators used in relation to this target.	
VI) Please provide information on challenges in implementation of this target.	
VII) Please provide any other relevant information.	
Network of Protected Areas established to safeguard the natural habitats.	

Box XII.

Goal 6	Control threats from invasive alien species.	
Target 6.1	Pathways for major potential alien invasive species controlled	
I) National target: Has a national target been established corresponding to the global target above?		
a) No		x
b) Yes, the same as the global target		
c) Yes, one or more specific national targets have been established		
Please provide details below.		
<p>Not much research on alien species or on the impacts of IAS has been done up to now. The meager studies undertaken so far list 700 alien species of vascular plants, and 4500 indigenous species. Of these, six can be regarded as high-impact. A comprehensive catalogue of other organisms (even of indigenous species), including animals, algae, fungi, bacteria, etc. is not available. Therefore, nothing can be said with certainty about the number of IAS in these groups. The known intentional introductions of animal species include sheep and cows from Australia and New Zealand, finfish (e.g. silver carp, China grass carp, tilapia, rainbow trout) and shellfish for aquaculture and aquaria, and Australian bees for apiculture. Of these introductions, tilapia has escaped from aquaculture and has established on its own in many wetlands in Sindh while China grass carp, introduced in the 1970s into Haleji Lake for controlling weeds, has reportedly deprived the native herbivorous fish of their food. Accidental introductions include insect pests of agriculture (e.g. American bollworm, <i>Heliothis armigera</i>), and pests of horticulture.</p> <p>Fortunately, the magnitude of IAS in Pakistan is not as great as in some other countries, but unfortunately, there is virtually no awareness of this important issue among the general public, policymakers, and even among most of the forest department personnel. While most of the introduced plant species date back to the colonial era, new intentional introductions (both authorized and unauthorized) go on, unabated. Nursery owners frequently import seeds and propagules of</p>		

ornamental plants, while most officially sanctioned tree-plantation drives involve alien species.

The plant and animal quarantine laws are applicable and adequate arrangements are available at all designated ports of import and export, these laws however, do not address IAS. Diseased/ disease carrying living organisms/ seed are controlled under the Quarantine Acts.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box (es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	x
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	

Please provide details below.

There is no legislation that deals specifically with Invasive Alien Species (IAS). The Biodiversity Action Plan (BAP) of Pakistan deals with this problem very superficially. Action 6.6 of the BAP reads: "Take measures to control IAS of fauna and flora, and to prevent further introductions." The Quarantine Department checks plant and animal species being imported only for any pests or pathogens accompanying them. There is no provision to check the possible ecological impact of imported species.

IV) Please provide information on current status and trends in relation to this target.

A comprehensive report on IAS was prepared for the First National Report to the CBD (1998), it was followed by workshop on in 1999 at Islamabad, jointly organized by IUCN-Pakistan and CABI-Bioscience. The workshop decided to prepare a list of well-known IAS. Since comprehensive knowledge is hitherto available only for vascular plants (in the Flora of Pakistan), the workshop deliberations were concerned with plants only; but it was decided that other groups (animal, algae, fungi, bacteria) should be dealt with later.

The workshop recommended that an institution should be identified to give certificates of clearance before the introduction of species. It also recommended that this institution should be advised by a panel of experts belonging to various fields of biology, especially plant and animal taxonomists, agriculturists and foresters. The workshop also resolved to open a Pakistani Chapter of Invasive Species Specialist Group (IUCN/SSC IAS Specialist Group), named the IAS Specialists Group-Pakistan (ISSGP). It was formed at the national level with support from IUCN and CABI, and will highlight in a brochure to be produced by them, the problems created by IAS.

V) Please provide information on indicators used in relation to this target.

VI) Please provide information on challenges in implementation of this target.

Lack of coordination, financial resources, awareness and above all absence of any institution that

would own and host this activity remain a main bottleneck in this regard

VII) Please provide any other relevant information.

Presently the Animal and Plant Quarantine Departments have staff posted at all designated ports of entry and exit who check the import and export the of plant and animal specimens. The quarantine departments however do not check the alien invasive species. Since there is no legislation for IAS therefore no effective control exists. However, the forestry department has banned the plantation of Eucalyptus species in natural forest areas and the fisheries departments have take actions to eliminate the invasive fish species.

Box XIII.

Target 6.2	Management plans in place for major alien species that threaten ecosystems, habitats or species		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
Some alien species are real threat to conservation of local faunal diversity. Therefore, there is a need to formulate management plans to control the invasive alien species that threaten ecosystem and habitat. Eucalyptus planting and Mesquite in irrigated forest plantations and in Protected Areas is not practiced any more.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
IV) Please provide information on current status and trends in relation to this target.			

V) Please provide information on indicators used in relation to this target.
VI) Please provide information on challenges in implementation of this target. Lack of coordination, financial resources and awareness remain a main bottleneck in this regard
VII) Please provide any other relevant information.

Box XIV.

Goal 7	Address challenges to biodiversity from climate change, and pollution.		
Target 7.1	Maintain and enhance resilience of the components of biodiversity to adapt to climate change		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
<p>Realizing the gaps in knowledge and data on the impacts of climate change on biological diversity in Pakistan, the Government of Pakistan has created an autonomous organization The Global Change Impacts Studies Center (GCISC) since 2002. The Center has the mandate to undertake such studies. So far no substantive output on the specific impacts of global climate change on the various components of biodiversity of Pakistan has been made.</p> <p>One important aspect to be studied is the impact of prolonged drought in Balochistan, which particularly affects the Juniper forest ecosystem of Ziarat. Mortality of trees has also been reported here but there is no information available on the other components of Biodiversity in the ecosystem. Studies are also required on the other ecosystems in the province.</p> <p>Some studies have also been conducted to determine the impact of pollution on marine and fresh water biodiversity. Steps have been taken to legislate against the release of untreated industrial effluents in water streams / channels / canals / rivers. NEQS have been notified.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water	x		The Fisheries Department imposes fines/ punishments to the persons under Fisheries Enactment who poison waters Moreover research studies are conducted to determine the different parameters of contaminated water. NEQS have been notified under the Pakistan Environmental Protection Act 1997.
c) Marine and coastal		x	NEQS have been notified in a bid to reduce the impact of pollution.
d) Dry and subhumid land		x	Drought has affected the ecosystem. Drought Management strategies have been formulated to counter the impacts. Efforts are made to improve the water availability situation in drought hit areas

e) Forest		x	As above
f) Mountain		x	Drought has influenced the Mountain ecosystem in Balochistan. Drought Management strategies have been formulated to counter the impacts. Efforts are made to improve the water availability situation in drought hit areas
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			X
Please provide details below.			
There is lack of data so no substantial information can be provided. Pakistan's first national report to the UNFCCC has mentioned about the possible impacts of climate change on ecosystems, agro-ecological zones and sea levels, but no specific real time data is available. Some data is however available on the impacts of drought.			
IV) Please provide information on current status and trends in relation to this target.			
V) Please provide information on indicators used in relation to this target.			
The following indicators are used in various projects:			
i) Analysis of water quality to determine the level of pollutants			
ii) Impact of drought on biodiversity			
iii) Reduction of glaciers in the northern mountains and water flow in rivers.			
VI) Please provide information on challenges in implementation of this target.			
Lack of coordination, financial resources and awareness remain a main bottleneck in this regard			
VII) Please provide any other relevant information.			
The only worthwhile document is the First National communication to the UNFCCC. The Ministry of Environment has made efforts to fulfill its obligations under the UNFCCC; a separate Cell on Clean Development Mechanism (CDM) has been established and a three year (2005-2008) federally funded project on the implementation of MEAs in Pakistan is operational. Another project on the implementation of the National Conservation Strategy (NCS) is also in full swing.			

Box XV.

Target 7.2	Reduce pollution and its impacts on biodiversity
I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	x
Please provide details below.	
The National Environmental Quality Standards (NEQS) specifying the limits / parameters for domestic or industrial wastewater, air emissions from industries and vehicles and noise level for vehicles only have been notified. The standards for noise from various activities, hospitals, for example industrial noise level, noise level for construction activity, hospitals, recreational activities, residential areas have not been framed under the present NEQS.	

The Pakistan Environmental Protection Agency (Pak EPA) has the mandate to reduce pollution from different sources in the country. EPA is implementing a project to reduce pollution and impact on biodiversity in major rivers and lakes of the country besides adopting other measures to reduce pollution and its impacts.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	Release of untreated industrial effluents in natural streams has affected the fish fauna adversely. NEQS have been notified to reduce the pollution levels. The impact is not yet visible.
c) Marine and coastal		x	Release of untreated industrial effluents and sewage from Karachi has polluted the coastal waters. Steps are being taken to reduce the pollutant inflow.
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	x

Please provide details below.

Only the National Environmental Quality Standards have been notified that carry the force of law. The Federal EPA and the Provincial EPAs/ Departments are the implementing agencies to ensure compliance.

IV) Please provide information on current status and trends in relation to this target.

Pakistan environmental Protection Agency has launched the Self Monitoring and Reporting Tool (SMART) as an effective mechanism on regular basis for reporting compliance to the National Environmental Quality Standards (NEQS) by industries. This system is being implemented in the provinces. The Federal EPA has successfully completed a pilot scale programme of SMART.

Impacts of pollution on specific areas are studied by various R& D and educational institutions but there is no coordination in this respect. However there is a general trend of rising air pollution levels in the cities, ground water and river pollution levels. The water pollution of the rivers Ravi, Kabul, Swat and Lai and Daig nallahs, coastal areas in Karachi is well documented; the BOD and COD levels of these have increased beyond the acceptable levels. The untreated municipal sewage is mostly drained into the rivers and sea. The oil spill of the Tasman Sprit ship in 2003 has raised concerns of the government and the civil society and actions were taken for cleanup and avoiding future accidents. An Emergency Plan has also been formulated.

V) Please provide information on indicators used in relation to this target.

Water quality analysis, Air quality analysis, Aquatic Biodiversity composition

VI) Please provide information on challenges in implementation of this target.

Lack of coordination, financial resources and awareness remain a main bottleneck in this regard

VII) Please provide any other relevant information.

Box XVI.

Goal 8	Maintain capacity of ecosystems to deliver goods and services and support livelihoods.		
Target 8.1	Capacity of ecosystems to deliver goods and services maintained		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			x
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
<p>No specific data are available however, the majority of forests are managed under forest working plans that are based on sustainable yield. Similarly, the fisheries sector also manages the fish catch on sustained basis; the focus however remains on commercial fish species. The Forestry departments auction minor forest products and grass cutting/ grazing of palatable grasses and forbs. There is no specific provision for conserving all the species diversity of dry lands and forests. The forest department also undertakes reseedling of palatable grasses in some rangelands.</p> <p>The auction of Kuth (<i>Saussuria lappa</i>) a CITES Appendix I species has been halted since its listing. Harvesting of medicinal plants is also regulated in some cases by issuance of permits.</p> <p>Eighty percent of the feed requirements of livestock in Balochistan is met from natural rangelands. Capacity of these rangelands to support the increasing number of livestock in the province is depleting fast because of overstocking. Severe drought 1998-2004 further exacerbated the situation. Many rangelands went out of production in some areas. Because of failure of monsoon, biomass production fell to an all time low. This adversely affected the livestock populations in the province and in turn the livestock communities in these areas.</p> <p>Another important problem related to the ecosystem capacity to deliver goods and services for livelihood support is the fast declining water table. Due to non-availability of flow water in Balochistan, people meet their needs for drinking and irrigation of agricultural crops from ground water resources. Since the introduction of diesel driven water pumping engines and electricity run tube wells more water is being pumped out of ground than its current recharge rate. This has caused a great disparity between the recharge and discharge of ground water table leading to the decline of water table at about three meters per annum. Recently population pressure and drought has further accelerated the rate of water table decline, which has in turn affected the agriculture and other livelihood resources in the province.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain			

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	X
Please provide details below.	
In accordance with the provisions for the laws on Protected Areas / reserved water bodies.	
IV) Please provide information on current status and trends in relation to this target.	
There is no system of reporting on the status and trends in this regard	
V) Please provide information on indicators used in relation to this target.	
Ecosystem inventories / Protected Areas(PA) inventories at the time of Management planning	
VI) Please provide information on challenges in implementation of this target.	
Lack of coordination, financial resources and awareness remain a main bottleneck in this regard	
VII) Please provide any other relevant information.	
Network of Protected Areas serves the requisite purpose.	

Box XVII.

Target 8.2	Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			X
Please provide details below.			
<p>In order to cater to the needs of the local population the Guzara forests that provide tenure security to the local population have been declared in the provinces of Punjab and the North Western Frontier. The Common Village lands called Shamlats also with secure tenure for the adjoining resident communities cater for the needs of wood, timber and grazing/ grass cutting needs of the locals. Medicinal Plants are conserved in the natural habitats and PAs The government of Pakistan is making the best efforts to achieve the Millennium Development Goals.</p> <p>In Balochistan due to aridity and harsh climatic conditions, productivity of ecosystems is very low. Moreover, the ecosystems are very fragile and are therefore vulnerable to even small variation in climate. Drought has pushed the productivity from the biological resources to a very low level and in turn increased the poverty level for communities that are entirely dependent on natural resources. This needs to be addressed. Efforts are however in progress to manage natural resources in a sustainable manner.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	Biological resources are maintained through implementation of fisheries enactment and fish seed stock

			replenishment programs.
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			X
Please provide details below.			
The health and environment policies of the government of Pakistan directly and indirectly provide for supporting sustainable livelihoods, local food security and health care, especially of poor people			
IV) Please provide information on current status and trends in relation to this target.			
Availability of fish food secured by farming in private sector			
V) Please provide information on indicators used in relation to this target.			
Community meetings, gatherings, local surveys, public demands. Local surveys, Participatory Rural Appraisals (PRAs)/ RRAs			
VI) Please provide information on challenges in implementation of this target.			
Lack of public education and awareness and lack of knowledge & practice of ecosystem based approach and weak law enforcement capacity.			
VII) Please provide any other relevant information.			
Network of protected areas, conservancies and community game reserves are used in maintaining the biological diversity. . Access to natural resources of the local communities ensures the support.			

Box XVIII.

Goal 9	Maintain socio-cultural diversity of indigenous and local communities.
Target 9.1	Protect traditional knowledge, innovations and practices
I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	X
Please provide details below.	
The Ministry of Culture, Sports and Youth Affairs and its attached departments like the Lok Virsa and the Pakistan National Council of the Arts make efforts to promote the socio- cultural diversity of the local communities and conserve their traditional cultural expressions. Efforts are being made to revive the traditional Institutions, which help maintain in tact the traditional knowledge, innovations	

and practices and ensure their continuity in the system. For the protection of traditional knowledge on herbal medicines the Ministry of Food and Agriculture is implementing a project. Ethno- Botany is studied at different levels by the universities and different development NGOs. The draft national law on ABS has also been prepared. The indigenous issues of ILO 107/169 are dealt with by the Ministry of Labor and Manpower. No specific targets have been set to protect traditional knowledge, innovations and practices of the local and indigenous communities. The Pakistan Intellectual Property Organization has been established, its mandate inter alia includes the protection of the traditional knowledge, innovations, cultural expressions and folklore of the local communities from patenting.

The Lok Virsa that supports the traditional craftsmen, artists and artisans, has established a Lok Virsa museum and organizes a festival on annual basis to display the traditional knowledge/ cultural expressions of the local and indigenous communities.

The Ministry of Health recognizes the traditional medicinal practices and has established the National Council for Tibb. The Pakistan Museum of Natural History is preparing a database of traditional knowledge.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	X

Please provide details below.

There is a lot of awareness amongst various agencies/ Ministries on one or more issues related to the protection of the traditional knowledge and practices of local communities. However, the holistic approach on ABS issues as covered under Articles 8 (j), 15 of the CBD have recently drawn the attention of the Ministry of Environment, and the draft ABS law will be finalized soon after the completion of the ongoing consultative process.

IV) Please provide information on current status and trends in relation to this target.

V) Please provide information on indicators used in relation to this target.

Information on traditional knowledge

VI) Please provide information on challenges in implementation of this target.

Lack of coordination, financial resources and awareness remain a main bottleneck in this regard

VII) Please provide any other relevant information.

Box XIX.

Target 9.2	Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			X
Please provide details below.			
<p>The rights of the local communities over the forests and rangelands adjoining their respective place of abode are recognized and protected under the forest laws of the country. The local residents have rights on water, grass, right of way, timber and firewood for domestic use in accordance to well defined rules and procedures of law and also recorded in the revenue record. The rights over private forests and communal forests are different for different areas of the country but in essence all admitting rights. The North Western Frontier Province Forest Ordinance 2000 provides for joint forest management. However, there is general lack of awareness in protecting the knowledge, practices and innovations of local and indigenous communities. This is not reflected in the draft ABS law that does not adequately address the aspect of benefit sharing.</p>			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			X
Please provide details below.			
<p>Awareness on the issues of Protecting the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing has been lately realized in Pakistan. The Sustainable Development Policy Institute Islamabad is implementing a small project on ABS in district Abbottabad (NWFP) and arranged a workshop on ABS during the World Social Forum at Karachi 2006. The SDC Inter-cooperation Peshawar is also implementing a four years project titled 'innovation for Poverty Reduction' in three districts of the NWFP: Swat,</p>			

Chitral and Buner the project is in its third year. This project has addressed the issues of protection of traditional knowledge and practices of the local communities to a larger extent. A draft law on regulation of traditional medicine trade, "Tibb-e-Unani, Ayurvedic, Homeopathic, Herbal and other Non-Allopathic Medicines Act, 2004" formulated by Ministry of Health has been approved by the cabinet and is in the process of approval from National Assembly.

IV) Please provide information on current status and trends in relation to this target.

There is a general realization that coordination amongst the various stakeholders is needed to address the complex issues related to ABS. A project on ABS in particular on implementation of Bonn Guidelines in Pakistan has also been prepared and is in the pipeline for approval. The Pakistan Intellectual Property Organization (IPO) has been established and it is hoped that the work on this aspect of the Convention will draw substantial attention.

V) Please provide information on indicators used in relation to this target.

X

VI) Please provide information on challenges in implementation of this target.

Lack of coordination, financial resources and awareness remain a main bottleneck in this regard

VII) Please provide any other relevant information.

Box XX.

Goal 10	Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources.		
Target 10.1	All transfers of genetic resources are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			X
Please provide details below.			
Pakistan's law on Access and Benefit Sharing is still in the draft shape, after a consultative process the same shall be finalized. The Ministry of Food, Agriculture and Livestock (MINFAL) the focal Ministry for ITPGRFA has prepared the draft Plant Breeders Rights Act that is also in an advanced stage of approval by the legislature. The Ministry of Environment has also notified the Bio-safety Rules 2005. All such actions are in conformity with the provisions of the convention, ITPGRFA and the Cartagena protocol on Bio-safety.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	

d) Dry and subhumid land	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e) Forest	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f) Mountain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			<input checked="" type="checkbox"/>
b) Yes, into national biodiversity strategy and action plan			<input type="checkbox"/>
c) Yes, into sectoral strategies, plans and programmes			<input type="checkbox"/>
Please provide details below.			
IV) Please provide information on current status and trends in relation to this target.			
The Plant Breeders and the Access and Benefit Sharing Laws are in the draft shape while the Bio-safety Rules have recently been notified therefore it is premature to analyze the status and trends in this regard. The NGOs like Action Aid and SDPI however continuously raise their voices against GM crops, and terminator gene and other Genetic Use restriction Technologies			
V) Please provide information on indicators used in relation to this target.			
X			
VI) Please provide information on challenges in implementation of this target.			
Lack of coordination, financial resources and awareness remain a main bottleneck in this regard			
VII) Please provide any other relevant information.			

Box XXI.

Target 10.2	Benefits arising from the commercial and other utilization of genetic resources shared with the countries providing such resources		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			<input checked="" type="checkbox"/>
b) Yes, the same as the global target			<input type="checkbox"/>
c) Yes, one or more specific national targets have been established			<input type="checkbox"/>
Please provide details below.			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Inland water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			X
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			
Please provide details below.			
IV)			
V) Please provide information on current status and trends in relation to this target.			
X			
VI) Please provide information on indicators used in relation to this target.			
X			
VII) Please provide information on challenges in implementation of this target.			
X			
VIII) Please provide any other relevant information.			
X			

Box XXII.

Goal 11	Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.		
Target 11.1	New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20		
I) National target: Has a national target been established corresponding to the global target above?			
a) No			X
b) Yes, the same as the global target			
c) Yes, one or more specific national targets have been established			
Please provide details below.			
GEF funded projects amounting to US 25 m US \$ are under implementation in Pakistan these are The Mountain Areas Conservation Project (MACP), the Protected Areas Management Project (PAMP) and the Pakistan Wetlands Project. The Mid Term Development Framework has financial allocation as detailed in the foregoing Boxes of this report. No specific funds/ financial targets have been set in this regard			
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been			

established, please indicate here, and give further details in the box(es).			
Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land	X		
e) Forest	X		
f) Mountain	X		
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?			
a) No			
b) Yes, into national biodiversity strategy and action plan			
c) Yes, into sectoral strategies, plans and programmes			X
Please provide details below.			
<p>The funding mechanism has no targets for allocation for CBD related projects for Pakistan.</p> <p>It is well recognized by the Government of Pakistan to integrate social and environmental considerations into development processes of crosscutting sectors of economy, in a holistic manner, to achieve positive environmental outcomes.</p> <p>Mid term Development Framework (MTDF) (2005-2010) recognizes lack of institutional capacity with less emphasis on environment in Government fiscal policies, and insufficient allocation of funds by Provincial Governments for protection of environmental areas of forestry, biodiversity, water and sanitation.</p> <p>The MTDF 2005-10 has been prepared with the long-term objective of attaining sustainable economic growth without environmental degradation. It identifies country's specific priorities and addresses them within the framework of comprehensive national strategies for sustainable development as well as Millennium Development Goals, Johannesburg Plan of Implementation and Water, Energy, Health, Agriculture and Biodiversity Framework. The MTDF addresses the biodiversity related issues with the following strategy :</p> <p>a) Use Pakistan's Biodiversity Action Plan as the umbrella document for planning and management.</p> <p>b) Involve local communities in conservation and sustainable use of biodiversity through incentives and fixing responsibilities.</p> <p>c) Develop Bio-safety guidelines with the supporting legal framework.</p> <p>d) Ensure representation of all ecosystems/biodiversity hotspots in protected areas.</p> <p>e) Develop the National Biodiversity Policy for implementation at federal and provincial levels.</p> <p>f) Enhance capacity building in biodiversity related research.</p> <p>g) Develop and implement Protected Area System Plan.</p> <p>h) Develop national database of threatened and endangered species.</p> <p>i) Encourage captive breeding of endangered species to promote ex-situ conservation of biodiversity.</p> <p>To achieve these indicative recommendations, enhanced amounts are allocated for the period 2005-10. Following table shows amounts allocated in Pak Rupees (Billion) for the current MTDF</p>			

Area	Federal Share	Provincial Share
Brown Environment (65 Projects)	6.0	2.2
Green Environment 45 Projects	7.0	1.0
Cross Sectoral Areas (10 Projects)	1.0	0

Following table gives a brief of current projects run by the Federal Government. The projects listed below are in addition to the measures taken by the provinces:

	Project	Cost Rs. Millions
1	AJK Poverty Reduction Project Through Participatory Watershed Development	474.900
2	Coastal Areas/Dry Land Biodiversity & Survey Management	39.540
3	Conservation and Rehabilitation of Indus Delta Mangroves for Sustainable Management	39.400
4	Environmental Rehabilitation and Poverty Reduction through Participatory Watershed Management in Tarbela Reservoir Catchment Area	532.500
5	Environmental Rehabilitation Through Improvement/ Promotion of Indigenous Tree Species in South AJK	39.000
6	Establishment of a Model Park for Improvement of Urban Environment and Recreational Facility in Attock	34.17
7	Establishment of Cherat Wildlife Park in Nowshera District.	38.858
8	Forestry Sector Research and Development Project	193.500
9	GEF Protected Area Management Project	26.394
10	Implementation of Management Plan for Ayubia National Park, District Abbottabad	72.710
11	Improvement of Urban Environment for Public at Ayub National Park, Rawalpindi through Forestry Plantation and Landscaping	17.500
12	Improvement of Urban Environment of Chakwal City through Amenity Forestry and Landscaping	12.400
13	Improvement of Urban Environment of Hazro City	24.026
14	Improvement of Urban Environment of Rawalpindi through amenity Forestry and landscaping	12.200
15	Improvement of Urban Environment/ Construction of Parks in PP-11 and 14 Rawalpindi	39.921
16	Planting of Blank areas of Khanewal Irrigated Plantation	44.980
17	Rachna Doab Afforestation Project Maintenance Cost	34.709
18	Rehabilitation of Rangelands in Pothwar Tract of Punjab through Participation of Local Communities.	24.802
19	Strengthening of Forest Products Research at Pakistan Forest Institute	39.300

IV) Please provide information on current status and trends in relation to this target.

V) Please provide information on indicators used in relation to this target.

No indicators adopted so far, however experience of other parties is welcome in this regards.

VI) Please provide information on challenges in implementation of this target.

Capacity of technical personnel as well as awareness of the society at large appear to be a major challenge, increased demand and price of real estate also are a major challenges in this regards.

VII) Please provide any other relevant information.

Box XXIII.

Target 11.2

Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4

I) National target: Has a national target been established corresponding to the global target above?

- | | |
|---|---|
| a) No | x |
| b) Yes, the same as the global target | |
| c) Yes, one or more specific national targets have been established | |

Please provide details below.

Pakistan is a developing country hence this target is irrelevant.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural		x	
b) Inland water		x	
c) Marine and coastal		x	
d) Dry and subhumid land		x	
e) Forest		x	
f) Mountain		x	

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

- | | |
|---|---|
| a) No | x |
| b) Yes, into national biodiversity strategy and action plan | |
| c) Yes, into sectoral strategies, plans and programmes | |

Please provide details below.

IV) Please provide information on current status and trends in relation to this target.

V) Please provide information on indicators used in relation to this target.

X
VI) Please provide information on challenges in implementation of this target.
X
VII) Please provide any other relevant information.

Global Strategy for Plant Conservation (GSPC)

The Conference of the Parties, in decision VI/9, annex, adopted the Global Strategy for Plant Conservation. Parties and Governments are invited to develop their own targets with this flexible framework. The Conference of the Parties considered the Strategy as a pilot approach for the use of outcome oriented targets under the Convention. In decision VII/10, the Conference of the Parties decided to integrate the targets into the reporting framework for the Third National Reports. Please provide relevant information by responding to the questions and requests contained in the following tables.

Box XXIV.

Target 1. A widely accessible working list of known plant species, as a step towards a complete world flora.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
Flora of Pakistan has been prepared. More than 5700 species of flowering plants have so far been identified. 21 species of Gymnosperms, 189 Pteridophytes more than 4500 Fungi and 775 Algae species have already been identified. The natural areas are continuously being surveyed to record the flora in different ecological zones. New species coming across are duly described.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
The Pakistan Museum of Natural History and the National Herbarium at the National Agricultural Research Council are mandated to undertake surveys of flora and fauna in the country; however, no standard reporting format on the status and trends on species composition is available on a regular basis. A project to compile the Flora of Pakistan is on-going at Botany Department University of Karachi. Botany Departments of all the Universities survey the natural areas in the sphere of their jurisdiction. Some individual scientists are also active in this field.	
III) Current status (please indicate current status related to this target)	
As has already been mentioned all known species of flowering plants have been compiled in the Flora of Pakistan. Similarly, species of Gymnosperms, Pteridophytes, Fungi and Algae have been described.	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	

Surveys of natural areas, plant collections, identification and description of plant species, and inclusion in the plant lists / floras. No legislation has been initiated, however efforts are under way for the establishment of the National Botanical Garden at Bani Gala Islamabad.

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

Herbaria specimens, identification, reports and publications

VI) Constraints to achieving progress towards the target

Capacity, funding and awareness

VII) Any other relevant information

Box XXV.

Target 2. A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.

I) Has your country established national target corresponding to the above global target?

a) Yes

x

b) No

Please specify

A few preliminary attempts have been made to draw up national lists of threatened species, including a list of more than 700 plant species believed to be nationally rare or threatened, no comprehensive and systematic list of species of national concern has been compiled for Pakistan. Such a list would include species which are nationally rare and declining; those which are nationally rare, not declining, but otherwise at risk e.g. from population fluctuations, natural catastrophes, persecution, etc.; those which are highly localized in distribution; and those which are still widespread and common but suffering significant decline.

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?

a) Yes

X

b) No

Please specify

Protected Area (PA) planning includes the assessment of rare / endangered / threatened plant species. All development projects related to natural habitats have to undertake EIAs that report on the conservation status of plant species

III) Current status (please indicate current status related to this target)

Lists of internationally threatened species hardly reflect the ground situation. While there are little data available to demonstrate the decline of species' populations in Pakistan, the accelerating loss and fragmentation of natural habitats clearly implies such a decline is occurring. Habitat fragmentation isolates populations, exposing species to a higher rate of genetic loss and to a greater risk of extinction

So far as plant species are concerned very little has been done to protect some of really threatened species. There are few reports available which have indicated the conservation status of some plant species. Chaudhry and Qureshi (1987) reported 709 (about 4% of the total flora) as threatened. These studies are primarily based on the herbarium material only. Oldfield et al (1998) reported only two endangered trees from Pakistan. These reports contain merely preliminary data and have no categorization based on the criteria laid down by IUCN i.e. Extinct (Ex), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Lower Risk (LR), Data Deficient (DD) and Not Evaluated (NE). In fact, earlier works of listing threatened species of plants is either fragmentary or out dated and lying with different agencies which need to be re-evaluated and updated. The use of these earlier lists as a conservation tool is limited by the fact that the status of many species remains unclear, particularly of threatened species. It is therefore, very important to have a comprehensive survey of the important vegetation zones particularly of national parks, to evaluate the conservation status of different endangered species. It is important to prepare National Red Data lists of threatened plant species based on recent IUCN categories. Such lists would include species which are nationally rare and declining; those which are nationally rare, not declining, but otherwise at risk e.g. from population fluctuations, natural catastrophes, persecution, etc.; those which are highly localized in distribution; and those which are still widespread and common but suffering significant decline.

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)

Steps are yet to be undertaken in this regard.

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

Reports, Publications

VI) Constraints to achieving progress towards the target

Lack of coordination, financial resources and awareness

VII) Any other relevant information

Box XXVI.

Target 3. Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.

I) Has your country established national target corresponding to the above global target?

a) Yes

x

b) No

Please specify

All the management plans of Protected Areas prescribe plant conservation and sustainable use. Such prescriptions are based mainly on practical experience, empirical data and to some extent research.

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?

a) Yes

b) No

X

Please specify

This target has impliedly been applied in various projects but the same is not part and parcel of any specific plan, programmes and strategy.

III) Current status (please indicate current status related to this target)

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)

Legislative Measures are yet to be taken in this regards.

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

Plant surveys at the time of preparing Management Plans for Protected Areas.

VI) Constraints to achieving progress towards the target

Lack of coordination, financial resources and awareness

VII) Any other relevant information

Box XXVII.

Target 4. At least ten percent of each of the world's ecological regions effectively conserved.

I) Has your country established national target corresponding to the above global target?

a) Yes

x

b) No

Please specify

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?

a) Yes

X

b) No

Please specify

III) Current status (please indicate current status related to this target)

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)

Provincial Legislation of Protected areas is in force from the pre CBD era. This legislation is regarding national parks, game reserves, and Wildlife sanctuaries and regarding the various categories of protected forests.

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

Indicators used are the official (Federal and Provincial Governments) notifications and management plans of forests and Protected Areas

VI) Constraints to achieving progress towards the target

Capacity, funding, public awareness

VII) Any other relevant information

Box XXVIII.

Target 5. Protection of fifty percent of the most important areas for plant diversity assured.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
Establishment of PAs is a measure to achieve this target. More than 50% of the most important areas have been declared as protected. Effectiveness however remains to be monitored.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Official (Federal and Provincial Governments) notifications and management plans of forests and Protected Areas	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
VI) Constraints to achieving progress towards the target	
Lack of coordination, financial resources and awareness remain a main bottleneck in this regard	
VII) Any other relevant information	

Box XXIX.

Target 6. At least thirty percent of production lands managed consistent with the conservation of plant diversity.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
Even though no specific target has been fixed almost all natural production lands are managed consistent with the conservation of plant diversity	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	

a) Yes	X
b) No	
Please specify	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Protected Areas managed in some cases under a management plan and in most cases without a management plan. Most forests and rangelands managed through Working plans. Privately owned rangelands managed under traditional systems that almost correspond to scientific management.	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
Management plans, Working plans, local surveys, PRAs, RRAs	
VI) Constraints to achieving progress towards the target	
Lack of coordination, financial resources and awareness remain a main bottleneck in this regard	
VII) Any other relevant information	

Box XXX.

Target 7. Sixty percent of the world's threatened species conserved <i>In-situ</i>.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
All CITES listed species are protected under the wildlife laws. All plant species found in National Parks , Wildlife Sanctuaries and to some extent in Reserved and Protected Forests are duly protected through legislation.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
Even though no specific target has been fixed, all CITES listed species are protected under the wildlife laws. All plant species found in National Parks, Wildlife Sanctuaries and to some extent in Reserved and Protected Forests are duly protected through legislation.	
III) Current status (please indicate current status related to this target)	
The CITES compliant national legislation is under preparation, advocacy on others to fulfill this specific target is still needed.	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Legislation, Government notifications, Implementation monitoring	

V) Progress made towards target (please specify indicators used to monitor progress towards the target)
none
VI) Constraints to achieving progress towards the target
Lack of capacity / coordination, financial resources and awareness remain a main bottleneck in this regard
VII) Any other relevant information

Box XXXI.

Target 8. Sixty percent of threatened plant species in accessible <i>Ex-situ</i> collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programmes.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	x
Please specify	
No specific target has been established but more than 20,000 accessions related to agricultural biodiversity have been preserved in ex-situ collections. As there are no comprehensive lists of threatened plant species this target has not been addressed in the official plans.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	x
Please specify	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
VI) Constraints to achieving progress towards the target	
Lack of capacity, base data	
VII) Any other relevant information	

Box XXXII.

Target 9. Seventy percent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
More than 20,000 accessions related to agricultural biodiversity have been preserved in ex-situ collections, which is more than 70%. Efforts have also been made to maintain the associated indigenous and local knowledge.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
It is also planned to preserve the germ plasm of all wild relatives of crop / horticulture plants in ex-situ collections.	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
The Plant Genetics Breeding Centre has been established at National Agricultural Research Centre Islamabad to conserve the germ plasm of all wild relatives of crop and horticultural plants.	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
A three-year project titled "Documentation of Indigenous Knowledge about Medicinal Plants of Pakistan" has been initiated now entered in its final year. This project is financed by Pakistan Science Foundation and executed by Pakistan Museum of Natural History Islamabad. This project is meant to undertake field studies to determine the status, trends and threats related to the knowledge, innovations and practices of Medicinal plant use by indigenous and local communities.	
VI) Constraints to achieving progress towards the target	
Lack of capacity, coordination, funds and public awareness	
VII) Any other relevant information	

Box XXXIII.

Target 10. Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	X
Please specify	
No management plan for Alien species has been prepared so far for the 100 species identified so far that threaten plants, plant communities and associated habitats and ecosystems.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	X
Please specify	
III) Current status (please indicate current status related to this target)	
<p>Mega projects at national level have not been initiated, yet certain awareness campaigns have been commenced at a national level e.g. banning the plantation of Eucalyptus. At micro levels however, a few activities have been initiated as for example, the Capital Development Authority, Islamabad is cutting the paper mulberry (<i>Broussonetia papyrifera</i>) trees on a large scale as this species has created a great nuisance in the capital city. The invasion of paper mulberry has been identified as a problem in the governmental and the non-governmental sectors, however a more holistic approach on a larger scale is required to address the issue. Likewise, tilapia (<i>Oreochromis aureus</i> and <i>O. niloticus niloticus</i>) has escaped aquaculture and has established on its own in many wetlands in Sindh. While China-Grass Carp introduced in 1970's into Haleji Lake for controlling weeds has reportedly deprived the native herbivorous fish of their food. IUCN has made an effort to identify and enlist some of the known problematic species has been no cataloguing of alien invasive species or their impact on the local environment.</p>	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
<p>The issue of the invasion by the alien species has a recent recognition in Pakistan. Research institutes and universities have taken up small-scale projects to improve prevention or eradication of invasive species. CABI-Pakistan has initiated projects for the control of whitehead (<i>Parthenium</i>) and Water Hyacinth – another deadly invasive water plant.</p>	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
<p>The plantation of Eucalyptus species and Mesquite is discouraged throughout the country, however a system for effective monitoring and control is lacking. The Capital Development authority is taking measures to control paper mulberry by mechanical means and replacing them by native species that is not effective and the weed continues to stage a comeback due to its invasive nature. A holistic approach integrating the mechanical chemical and biological means is required which is yet not implemented.</p>	
VI) Constraints to achieving progress towards the target	
Lack of capacity, coordination, funds and public awareness	

VII) Any other relevant information

Tilapia has escaped aquaculture and has established on its own in many wetlands in Sindh while China-Grass Carp introduced in 1970's into Haleji Lake for controlling weeds has reportedly deprived the native herbivorous fish of their food. Accidental introductions include the insect pests of agriculture (e.g. American bollworm, *Heliothis armigera*) or horticulture. Few plant species could be recognized as invasive or potential invasive species. These are:

- Broussonetia papyrifera* (Family: Moraceae)
- Prosopis juliflora* (Family: Mimosaceae)
- Lantana camara* (Family: Verbenaceae)
- Parthenium hysterophorus* (Family: Compositae)
- Cannabis sativa* (Family: Cannabaceae)
- Prosopis glandulosa*
- Ipomoea carnea* (Family: Convolvulaceae)
- Robinia pseudoacacia*,
- Eucalyptus camaldulensis*
- Emex spinosa* (Family: Polygonaceae)
- Galium aparine* (Family: Rubiaceae)
- Xanthium strumarium* (Family: Compositae)
- Leucanea leucocephala* (Family: Mimosaceae)
- Lolium temulentum* (Family: Gramineae)
- Eichhornia crassipes* (Family: Pontederiaceae)
- Salvinia molesta* (Family: Salviniaceae)
- Pistia stratiotes* (Family: Araceae)

Box XXXIV.

Target 11. No species of wild flora endangered by international trade.

I) Has your country established national target corresponding to the above global target?

a) Yes

x

b) No

Please specify

The CITES authority in Pakistan strictly follows the rules for international trade in endangered species. There is no report of any species that is threatened by international trade. Legislation related to CITES is in advanced stage of its promulgation.

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?

a) Yes

X

b) No

Please specify

III) Current status (please indicate current status related to this target)

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)

Legislation is underway. Strict follow-up on CITES/ TRAFFIC rules, vigilance at Custom ports.

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

CITES permits, Custom posts data

VI) Constraints to achieving progress towards the target

None

VII) Any other relevant information

Box XXXV.

Target 12. Thirty percent of plant-based products derived from sources that are sustainably managed.

I) Has your country established national target corresponding to the above global target?

a) Yes

b) No

x

Please specify

No specific data are available to report on this target, however efforts are made that the Non Timber Forest Products (NTFPs) are harvested on a sustained yield basis. Forests and rangelands are managed on a sustained yield basis.

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?

Yes

No

x

Please specify

III) Current status (please indicate current status related to this target)

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)

V) Progress made towards target (please specify indicators used to monitor progress towards the target)

VI) Constraints to achieving progress towards the target

Lack of legislation, capacity, coordination, funds and public awareness

VII) Any other relevant information

Box XXXVI.

Target 13. The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted.	
I) Has your country established national target corresponding to the above global target?	
Yes	X
No	
Please specify	
The establishment of Protected and forest reserves has helped to check the decline of plant resources. However adequate awareness on the associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care needs more attention.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	X
Please specify	
Even though a specific target has not been fixed, the establishment of PAs and forest reserves has helped to check the decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care.	
III) Current status (please indicate current status related to this target)	
Same as above	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Same as above	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
Same as above	
VI) Constraints to achieving progress towards the target	
Lack of legislation, capacity, coordination, funds and public awareness	
VII) Any other relevant information	

Box XXXVII.

Target 14. The importance of plant diversity and the need for its conservation incorporated into communication, educational and public-awareness programmes.	
Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
<p>No specific target on plant diversity and the need for its conservation has been incorporated into CEPA programmes per se, however there is a strong overall environmental education (including biodiversity conservation) and public awareness program at the governmental level (The Ministry of Environment and Provincial Forest and Wildlife Departments and other related Departments) as well as the NGOs. The Ministry of Environment is implementing a mass awareness program, supports the academia on CEPA and organizes campaigns for tree planting and school environmental education. The NGOs have their large CEPA programmes and also publish a lot of educational material. The Ministry of Environment in collaboration with the Ministry of Education is implementing a project for inclusion of CEAPA in the curricula of the educational institutions.</p> <p>All foresters mailing list (a voluntary initiative of LEAD Pakistan fellows) with a focus on forestry/ biodiversity issues plays a major role in environmental education in Pakistan. So far, it has around 500 members from the academia, researchers, students, NGOs, donors, activists, media and the government.</p>	
Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	X
Please specify	
<p>Conservation of plant diversity has been included in education / curricula of different educational courses. Conservation of plant diversity is a necessary element of environmental conservation drives.</p> <p>Plant diversity is covered under the overall environmental education section of the National Environment Policy. No separate national targets have been set so far.</p>	
Current status (please indicate current status related to this target)	
A lot of activities take place that include advertisements in the print and electronic media, seminars, walks, mountain cleanup camps that include a section on taxonomy and newspaper supplements.	
Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Progress made towards target (please specify indicators used to monitor progress towards the target)	
Constraints to achieving progress towards the target	
Lack of capacity, coordination, legislation, financial resources and awareness	
Any other relevant information	

Box XXXVIII.

Target 15. The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
Even though a specific target has not been fixed based on the need assessment, the number of trained people in conservation is increasing. An exercise in the Ministry of Environment is underway to assess the need for the trained persons in different fields of conservation based on which steps shall be taken to improve the situation.	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Capacity building program and general educational programmes.	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
Number of trained personnel in plant and forest conservation and PA management	
VI) Constraints to achieving progress towards the target	
Lack of capacity, coordination, legislation, financial resources and awareness	
VII) Any other relevant information	
Plant biodiversity conservation mainly focuses on economic and medicinal plants. There is however a need to produce more Botanists with understanding of medicinal plants. This knowledge should also serve the natural resource management departments.	

Box XXXIX.

Target 16. Networks for plant conservation activities established or strengthened at national, regional and international levels.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	X
b) No	
Please specify	
PA management and forest management services are serving the purpose. Plant conservation is a part of PA management	

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	X
b) No	
Please specify	
III) Current status (please indicate current status related to this target)	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
Establishment of PAs and management of forests and rangelands	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
VI) Constraints to achieving progress towards the target	
Lack of capacity, coordination, legislation, financial resources and awareness	
VII) Any other relevant information	

Box XL.

Please elaborate below on the implementation of this strategy specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

a) The Flora of Pakistan, flowering plant species, gymnosperms, fungi and algae have been described. PAs have been established to conserve plant species. Conservation and sustainable use of plant species is assured in Management Plans of PAs. Conservation and Sustainable use are the main themes in the awareness and educational campaigns. Plant conservation is given due emphasis in EIA/ IEE exercises which are mandatory for all development projects.

b) Goals of the strategic plan of the Convention have been achieved to a large extent.

c) Even though a specific target has not been set yet the activities undertaken address the targets and hopefully targets shall be met to a large extent by 2010.

d) The actions are in line with the recommendations of the Biodiversity Action Plan.

e) The actions are a step towards the achievement of MDGs.

f) Major constraints are: Lack of capacity, funds and awareness.

Ecosystem Approach

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. At its second meeting, the Conference of the Parties has affirmed that the ecosystem approach is the primary framework for action under the Convention (decision II/8). The Conference of the Parties, at its fifth meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the ecosystem approach. The seventh meeting of the Conference of the Parties agreed that the priority at this time should be facilitating implementation of the ecosystem approach. Please provide relevant information by responding to the following questions.

<input checked="" type="checkbox"/> ¹ Is your country applying the ecosystem approach, taking into account the principles and guidance contained in the annex to decision V/6? (decision V/6)	
No	
No, but application is under consideration	
Yes, some aspects are being applied	X
Yes, substantially implemented	

<input checked="" type="checkbox"/> Is your country developing practical expressions of the ecosystem approach for national policies and legislation and for implementation activities, with adaptation to local, national, and regional conditions? (decision V/6)	
No	
No, but development is under consideration	X
Yes, practical expressions have been developed for applying some principles of the ecosystem approach	
Yes, practical expressions have been developed for applying most principles of the ecosystem approach	

Is your country strengthening capacities for the application of the ecosystem approach, and providing technical and financial support for capacity-building to apply the ecosystem approach? (decision V/6)	
No	
Yes, within the country	X
Yes, including providing support to other Parties	

<input checked="" type="checkbox"/> Has your country promoted regional cooperation in applying the ecosystem approach across national borders? (decision V/6)	
No	X
Yes, informal cooperation (please provide details below)	

¹ Please note that all the questions marked with have been previously covered in the second national reports and some thematic reports.

Yes, formal cooperation (please provide details below)	
Further comments on regional cooperation in applying the ecosystem approach across national borders.	
The entrance of polluted water from Indian territory into river system of Pakistan is damaging the ecosystem. This problem is required to be resolved at government levels of both countries. Some studies have been conducted in Afghanistan to study the Protected Area system and the ecosystems.	

Is your country facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach? (decisions VI/12 and VII/11)	
a) No	
b) No, some programmes are under development	
c) Yes, some programmes are being implemented (please provide details below)	X
d) Yes, comprehensive programmes are being implemented (please provide details below)	
Further comments on facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach.	
The experts of fisheries department disseminate the knowledge on fisheries through international seminars and workshops. The management of PAs and the Biodiversity is based on the Ecosystem Approach. Research findings are published in scientific journals, thus sharing it with a large readership. Donor funded projects arrange to exchange the experiences, build capacities and transfer technologies.	

Is your country creating an enabling environment for the implementation of the ecosystem approach, including through development of appropriate institutional frameworks? (decision VII/11)	
a) No	
b) No, but relevant policies and programmes are under development	
c) Yes, some policies and programmes are in place (please provide details below)	X
d) Yes, comprehensive policies and programmes are in place (please provide details below)	
Further comments on the creation of an enabling environment for the implementation of the ecosystem approach.	
Management planning of PAs and Forests and rangelands is mainly based on Ecosystem approach. Management plans are now based on Integrated Land Use Management principle.	

C. ARTICLES OF THE CONVENTION

Article 5 – Cooperation

9. ◊ Is your country actively cooperating with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biological diversity?	
a) No	
b) Yes, bilateral cooperation (please give details below)	
c) Yes, multilateral cooperation (please give details below)	
d) Yes, regional and/or subregional cooperation (please give details below)	X
e) Yes, other forms of cooperation (please give details below)	
Further comments on cooperation with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biodiversity.	
<p>Biodiversity surfaces in the bilateral programs/ negotiations with many countries under the Joint Ministerial Commissions. It is also included in the multilateral/ regional programs of work under SAARC (South Asian Association on Regional Cooperation) and the Economic Cooperation Organization. Pakistan also plays active role in the UNEP Governing Council deliberations and all Biodiversity related Conventions. Allforesters mailing list also plays a role in bringing regional and international stakeholders in contact with the local institutions, researchers, students and government agencies in touch with the on-going activities on the subject.</p>	

10. Is your country working with other Parties to develop regional, subregional or bioregional mechanisms and networks to support implementation of the Convention? (decision VI/27 A)	
a) No	
b) No, but consultations are under way	X
c) Yes, some mechanisms and networks have been established (please provide details below)	
d) Yes, existing mechanisms have been strengthened (please provide details below)	
Further comments on development of regional, subregional or bioregional mechanisms and networks to support implementation of the Convention.	
<p>An initial contact has been established with the Regional Technical Advisor UNDP for Pakistan's participation in the regional ABS project. Pakistan has also signed the regional MOU for the conservation of houbara bustard, Siberian crane, and marine turtles under the CMS. Pakistan also cooperated with the regional and international research organizations in the Asian Vulture Crisis, though the white backed vultures are almost near to extinction. Pakistan's cooperation with the Peregrine Fund in allowing export of vulture blood specimens to the USA and UK helped in the identification of the most probable cause of the large scale decline of vultures i.e. Diclofenac acid a pain killer veterinary drug.</p>	

11. Is your country taking steps to harmonize national policies and programmes, with a view to optimizing policy coherence, synergies and efficiency in the implementation of various multilateral environment agreements (MEAs) and relevant regional initiatives at the national level? (decision VI/20)

a) No	
b) No, but steps are under consideration	
c) Yes, some steps are being taken (please specify below)	X
d) Yes, comprehensive steps are being taken (please specify below)	

Further comments on the harmonization of policies and programmes at the national level.

In order to harmonize the national policies and programmes with a view to optimizing policy coherence, synergies and efficiency in the implementation of the MEAs; the Ministry of Environment has established a separate Wing for International Cooperation. A Project for the establishment of the MEAs Secretariat is also under implementation out of the resources of the federal government. This three years project costs PKR 39 million and is expected to *inter alia* address the above-mentioned issues. Similarly, the Ministry of Environment is also implementing a federally funded project for the implementation of the WSSD plan of implementation in Pakistan. This project focuses on the WEHAB component of the WSSD; biodiversity workshops have been arranged and actions are under way to prepare a national strategy and action plan under this project.

Box XLI.

Please elaborate below on the implementation of this strategy specifically focusing on:

- outcomes and impacts of actions taken;
- contribution to the achievement of the goals of the Strategic Plan of the Convention;
- contribution to progress towards the 2010 target;
- progress in implementing national biodiversity strategies and action plans;
- contribution to the achievement of the Millennium Development Goals;
- constraints encountered in implementation.

The project for the establishment of MEAs secretariat is in its first year of implementation therefore it is pre-mature to elaborate on the impact and outcomes of the actions taken. A strategy is being devised to influence the stakeholders in various Ministries and research organizations to address the 2010 targets.

Article 6 - General measures for conservation and sustainable use

12. Has your country put in place effective national strategies, plans and programmes to provide a national framework for implementing the three objectives of the Convention? (Goal 3.1 of the Strategic Plan)

a) No	
b) No, but relevant strategies, plans and programmes are under development	
c) Yes, some strategies, plans and programmes are in place (please provide details below)	x
d) Yes, comprehensive strategies, plans and programmes are in place (please provide details below)	

Further comments on the strategies, plans and programmes for implementing the three objectives of the Convention.

The National Conservation Strategy was approved in 1991. The National Biodiversity Strategy and Biodiversity Action Plan (BAP) were approved in 1998, however due to financial constraints the Ministry of Environment has been able to establish the Biodiversity Directorate in 2005. Comprehensive strategies and Action plans to address the three objectives of the Convention would be a priority area in the near future

13. ◊ Has your country set measurable targets within its national strategies and action plans? (decisions II/7 and III/9)

a) No	
b) No, measurable targets are still in early stages of development	x
c) No, but measurable targets are in advanced stages of development	
d) Yes, relevant targets are in place (please provide details below)	
e) Yes, reports on implementation of relevant targets available (please provide details below)	

Further comments on targets set within national biodiversity strategies and action plans.

No quantifiable targets have been set so far for the global 2010 targets

14. Has your country identified priority actions in its national biodiversity strategy and action plan? (decision VI/27 A)

a) No	
b) No, but priority actions are being identified	x
c) Yes, priority actions identified (please provide details below)	

Further comments on priority actions identified in the national biodiversity strategy and action plan.

The Ministry of Environment arranged workshops on biodiversity under a federally funded project on the implementation of the WSSD Plan of Action. One of the findings is that Pakistan has to a larger extent taken actions to address the first two components of the Convention however, much is needed to address the third component i.e. equitable sharing of benefits arising out of the genetic resources and traditional knowledge of the local communities. The WSSD project envisages to take up work on this issue during the next two years.

15. Has your country integrated the conservation and sustainable use of biodiversity as well as benefit sharing into relevant sectoral or cross-sectoral plans, programmes and policies? (decision VI/27 A)

a) No	
b) Yes, in some sectors (please provide details below)	x
c) Yes, in major sectors (please provide details below)	
d) Yes, in all sectors (please provide details below)	

Further information on integration of the conservation and sustainable use of biodiversity and benefit-sharing into relevant sectoral or cross-sectoral plans, programmes and policies.

The sensitization on this issue is quite recent and so far, little action has been taken in this regard. However, the draft ABS law has been prepared that would invariably address the issue of benefit sharing.

16. Are migratory species and their habitats addressed by your country's national biodiversity

strategy or action plan (NBSAP)? (decision VI/20)	
a) Yes	x
b) No	
I) If YES , please briefly describe the extent to which it addresses	
Conservation, sustainable use and/or restoration of migratory species	Regular surveys of migratory birds are carried out; hunting is allowed on sustainable basis. Endangered species are protected by law.
Conservation, sustainable use and/or restoration of migratory species' habitats, including protected areas	Migratory species habitats are protected as PAs. Habitat restoration plans are formulated for PAs. 19 Ramsar sites have been declared to conserve the migratory waterfowl and their habitats.
Minimizing or eliminating barriers or obstacles to migration	N/A
Research and monitoring for migratory species	Extensive Research studies have been conducted on Houbara bustard and White headed duck. Other waterfowl, cranes, marine turtles, and their habitats are also the subject of study. Populations are regularly monitored.
Transboundary movement	Some studies have been conducted in Afghanistan in relation to Cranes migration. MOUs have been signed with range states in relation to Houbara Bustard, Siberian crane and Marine turtles.
II) If NO , please briefly indicate below	
(a) The extent to which your country addresses migratory species at national level	
(b) Cooperation with other Range States since 2000	

Biodiversity and Climate Change

17. Has your country implemented projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use? (decision VII/15)	
a) No	
b) No, but some projects or programs are under development	x
c) Yes, some projects have been implemented (please provide details below)	
Further comments on the projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use.	
The Ministry of Environment has taken steps to address the issue of climate change aimed at adaptation and mitigation by the establishment of an autonomous policy think tank i.e. the Global Change Impact Studies Center (GCISC) that would address these issues and provide policy guidance to the Ministry. So far no project on adaptation and/or mitigation has been prepared in Pakistan. Some projects have however, been implemented to mitigate the impact of Drought in dry lands and aridlands and mountainous areas	

18. Has your country facilitated coordination to ensure that climate change mitigation and adaptation
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projects are in line with commitments made under the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification? (decision VII/15)	
a) No	
b) No, but relevant mechanisms are under development	X
c) Yes, relevant mechanisms are in place (please provide details below)	
Further comments on the coordination to ensure that climate change mitigation and adaptation projects are in line with commitments made under the UNFCCC and the UNCCD.	
So far, no climate change mitigation project has been conceived therefore no comments can be given.	

Box XLII.

<p>Please elaborate below on the implementation of this article and associated decisions specifically focusing on:</p> <ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
<p>The Government of Pakistan has created a research institute with an autonomous status Global Climate Impact Studies Center (GCSIC) that is expected to address all issues related to climate change including the impacts on biological diversity. The impacts of climate change on biodiversity are widely recognized and it is expected that substantial progress shall be made by this center on this article and associated decisions.</p>

Article 7 - Identification and monitoring

19. ◊ On Article 7(a), does your country have an ongoing programme to identify components of biological diversity at the genetic, species, ecosystem level?	
a) No	
b) Yes, selected/partial programmes at the genetic, species and/or ecosystem level only (please specify and provide details below)	X
c) Yes, complete programmes at ecosystem level and selected/partial inventories at the genetic and/or species level (please specify and provide details below)	
Further comments on ongoing programmes to identify components of biodiversity at the genetic, species and ecosystem level.	
<p>Many experts have worked on the identification of the components of biological diversity at the species and ecosystem level in the past; the National Herbarium (Stewart) initially housed at Gordon College Rawalpindi and later transferred to NARC. Champion, Seth and Khatak made the Forest ecosystem classification during 1965 that was an adaptation of the 1935 Indian forest types classification made by Champion. The Pakistan Museum of Natural History, all universities having departments of Zoology and Botany, the Zoological Survey of Pakistan and the Pakistan Forest Institute undertake species and ecosystem identification activities. However, no specific documented and harmonized program is available. The PARC under the Plant Genetic Resources Institute PGRI, NIBGE and the Federal Seed Certification Department undertake genetic studies/ DNA fingerprinting etc.</p> <p>Provincial Fisheries Departments, Academia (Bahauddin Zakariya University Multan, University of</p>	

Punjab, Pakistan Agriculture Research Council (PARC), IUCN-Pakistan, WWF-Pakistan and Provincial Fisheries Departments are basically oriented towards selected fish, However, various initiatives at national provincial and organizational level have been taken under a continuous program to identify components of Biodiversity. Moreover more than 20 projects funded by various agencies (GEF, UNDP, ADB, etc) are being executed in various parts of the country. Major habitats have therefore been identified and some of them, which are influenced by phenomenon like global change, have been reported by NARC and work continues.

20. ◇ On Article 7(b), which components of biological diversity identified in accordance with Annex I of the Convention, have ongoing, systematic monitoring programmes?

at ecosystem level (please provide percentage based on area covered)	12%
at species level (please provide number of species per taxonomic group and percentage of total known number of species in each group)	Waterfowl, cranes, houbara bustard and some ungulates
at genetic level (please indicate number and focus of monitoring programmes)	

Further comments on ongoing monitoring programmes at the genetic, species and ecosystem level.

The Juniper forests of Balochistan have been identified as a unique and threatened ecosystem of importance, the juniper forests are threatened from not only human activities but also a disease for which no effective remedy has been identified. A medium sized GEF project for the conservation of the juniper forests is in the pipeline. The government has also arranged the supply of natural gas through pipelines to ease the pressure on juniper wood. Similarly, the chilgoza forest ecosystem of Balochistan has been identified as a high priority area for conservation. Projects for the Chilgoza forests are also in pipeline. The Zoological Survey department is also implementing a project for survey of animals at the species level. Systematic monitoring programs as such are being undertaken for two programs: Fresh Water Dolphins and Marsh crocodile funded by WWF and executed by various organizations like Punjab Wildlife Department, NARC, ZSD, It has been a project approach and no systematic program is on going.

MACP, PAMP, and Wetlands project have monitoring programmes at species and ecosystem level.

21. ◇ On Article 7(c), does your country have ongoing, systematic monitoring programmes on any of the following key threats to biodiversity?

a) No	
b) Yes, invasive alien species (please provide details below)	
c) Yes, climate change (please provide details below)	X
d) Yes, pollution/eutrophication (please provide details below)	x
e) Yes, land use change/land degradation (please provide details below)	x
f) Yes, overexploitation or unsustainable use (please provide details below)	X

Further comments on monitoring programmes on key threats to biodiversity.

The Land Use Planning project of the Ministry of Environment is being implemented to map the land use and detect land use change by using remote sensing technology. The Pakistan Forest Institute has also completed the first forest resource assessment under an ADB project. This project has also laid the parameters for a continuous monitoring system of forests. During drought in Balochistan, the Area Development Programme Balochistan has continuously monitored the vegetation changes, one of the UNDP sponsored project, using the NOVA A satellite images. There are possibilities of extending the approach for the monitoring of rangelands by using the LANDSAT or SPOT data.

The Pakistan EPA and the provincial EPA also continuously monitor air and water pollution levels.

In selected areas, EPA has projects on quality of fresh water through avoiding pollutants. The Agha Khan Rural Support Programme (AKRSP) has identified some areas to be protected for use by local communities for snow trout.

Law in NAs of Pakistan protects otters and WWF has taken an initiative on Otter and Mahasheer (*Tor tor*) conservation.

A program on Climate Change has been initiated in Ministry of Science and Technology.

Aquatic/Fish resources are over exploited both in marine and fresh water environment.

22. ◇ On Article 7 (d), does your country have a mechanism to maintain and organize data derived from inventories and monitoring programmes and coordinate information collection and management at the national level?

a) No	
b) No, but some mechanisms or systems are being considered	
c) Yes, some mechanisms or systems are being established	X
d) Yes, some mechanisms or systems are in place (please provide details below)	
e) Yes, a relatively complete system is in place (please provide details below)	

Further information on the coordination of data and information collection and management.

The Land Use project is expected to develop a mechanism and organize data from inventories to coordinate data collection and management at the national level.

Some mechanism has been developed at several organization levels. PMNH has launched a Biodiversity Network Program that is available on the world wide web. Pakistan Forest Institute, Punjab Wildlife Research Institute, Zoological Survey Department, NARC, Academia and projects like MACP, PAMP, Wetlands continuously collect information that is shared amongst themselves and utilized for management planning.

23. ◇ Does your country use indicators for national-level monitoring of biodiversity? (decision III/10)

a) No	
b) No, but identification of potential indicators is under way (please describe)	
c) Yes, some indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented)	X
d) Yes, a relatively complete set of indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented)	

Further comments on the indicators identified and in use.

Biodiversity indicators have been developed for five conservancies under the MACP project the information may be accessed at www.macp-pk.org.

Although there is an office of Federal Fisheries Development Commissioner that is mandated to monitor fresh water habitats and fishes. No system however exists to maintain the data at Ministry of Food, Agriculture and Livestock level. Some information is available under Protected Areas management Project (PAMP). Indicators are developed under all projects to monitor the progress.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions taken for the implementation of this Article are at initial stages therefore it is difficult to elaborate on their impacts and outcomes at this stage.

Section d: per se there is no fisheries policy in the country. However, GoP has initiated efforts to devise a fisheries policy with the assistance of FAO and STREAM of NACA. This fisheries policy will encompass not only fresh and marine waters but is intended towards habitat conservation, import of alien species, quarantine system, and also looks into the possibility for creation of a national data base. The process was initiated in 2005 and first draft was prepared. However, it has failed to frame an interdisciplinary approach and a draft has been prepared.

Decisions on Taxonomy

24. ◊ Has your country developed a plan to implement the suggested actions as annexed to decision IV/1? (decision IV/1)

a) No	
b) No, but a plan is under development	X
c) Yes, a plan is in place (please provide details below)	
d) Yes, reports on implementation available (please provide details below)	

Further information on a plan to implement the suggested actions as annexed to decision IV/1.

A comprehensive plan to cater the action in this regard does not exist. However, several initiatives do exist to meet the milestone of the decision IV-1:

- i) The national repositories like Pakistan Museum of Natural History Islamabad, National Herbarium, National Agricultural Research Council, Quaid-e- Azam University Herbarium, Pakistan Forest Institute , and other Academia
- ii) Countrywide projects to maintain indigenous knowledge about medicinal plants.

Taxonomists in the country are extremely limited in number and require special government attention.

25. ◊ Is your country investing on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections? (decision IV/1)

No	
Yes (please provide details below)	X

Further information on investment on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections.

The Ministry of Environment plans to establish the first National Botanical Garden. The initial investment for fencing of 583 Acres of land at Bani Gala Islamabad has been started; it is envisaged to establish an international standard botanical garden in Islamabad that would be the hub of plant taxonomic activities. The PMNH and universities maintain the taxonomic collections while the CABI

Biosciences Centre Rawalpindi maintains a collection of insects.

Not directly, but any organizational development and expansion of academia could help build up taxonomical collections.

Academia such as Bahauddin Zakariya University Multan, Punjab University Lahore, National Agricultural Research Council (NARC), Pakistan Museum of Natural History (PMNH) and Karachi University (KU) have regular programs for their postgraduate students who regularly collect the material for taxonomic studies. The KU maintains marine references and has a collection of specimens of marine animals.

26. ◊ Does your country provide training programmes in taxonomy and work to increase its capacity of taxonomic research? (decision IV/1)

No	
Yes (please provide details below)	X

Further information on training programmes in taxonomy and efforts to increase the capacity of taxonomic research.

PMNH, Universities and other research institute are providing training to the researchers and institutes.

27. ◊ Has your country taken steps to ensure that institutions responsible for biological diversity inventories and taxonomic activities are financially and administratively stable? (decision IV/1)

No	
No, but steps are being considered	
Yes, for some institutions	
Yes, for all major institutions	X

28. .* Is your country collaborating with the existing regional, subregional and global initiatives, partnerships and institutions in carrying out the programme of work, including assessing regional taxonomic needs and identifying regional-level priorities? (decision VI/8)

a) No	X
b) No, but collaborative programmes are under development	
c) Yes, some collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessments)	
d) Yes, comprehensive collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessment and priority identification)	

Further information on the collaboration your country is carrying out to implement the programme of work for the GTI, including regional needs assessment and priority identification.

Not as such, but indirectly collaboration exists between various organizations, however no dedicated collaboration on taxonomy exists.

29. * Has your country made an assessment of taxonomic needs and capacities at the national level for the implementation of the Convention? (annex to decision VI/8)	
a) No	X
b) Yes, basic assessment made (please provide below a list of needs and capacities identified)	
c) Yes, thorough assessment made (please provide below a list of needs and capacities identified)	
Further comments on national assessment of taxonomic needs and capacities.	
Not as such. However, selected taxa are of interest under other collaborative arrangements with organizations like IHDP (International Human Dimensions Program) which has been keenly working on the changes in aquatic habitat particularly critical habitat with special reference to taxa, which are more vulnerable due to situations prone to drought, or floods.	

30. * Is your country working on regional or global capacity building to support access to, and generation of, taxonomic information in collaboration with other Parties? (annex to decision VI/8)	
a) No	
b) Yes, relevant programmes are under development	
c) Yes, some activities are being undertaken for this purpose (please provide details below)	X
d) Yes, many activities are being undertaken for this purpose (please provide details below)	
Further comments on regional or global capacity-building to support access to, and generation of, taxonomic information in collaboration with other Parties.	
The Pakistan Museum of Natural History (PMNH) is linked with GBIF through several activities to establish database on different taxonomic groups. Karachi University Botany Department has developed the database for flowering plants and remains in touch with other groups working in the field of Taxonomy. Other universities and institutions also work on different issues however, there is a need to coordinate all such work.	

31. * Has your country developed taxonomic support for the implementation of the programmes of work under the Convention as called upon in decision VI/8? (annex to decision VI/8)	
a) No	
b) Yes, for forest biodiversity (please provide details below)	X
c) Yes, for marine and coastal biodiversity (please provide details below)	X
d) Yes, for dry and sub-humid lands (please provide details below)	X
e) Yes, for inland waters biodiversity (please provide details below)	X
f) Yes, for mountain biodiversity (please provide details below)	X
g) Yes, for protected areas (please provide details below)	X
h) Yes, for agricultural biodiversity (please provide details below)	X
i) Yes, for island biodiversity (please provide details below)	X
Further comments on the development of taxonomic support for the implementation of the programmes of work under the Convention.	

Each of these disciplines has taxonomic support under different projects and in different institutions. Details have been provided in separate sections in the succeeding paragraphs.

32.* Has your country developed taxonomic support for the implementation of the cross-cutting issues under the Convention as called upon in decision VI/8?

a) No	
b) Yes, for access and benefit-sharing (please provide details below)	X
c) Yes, for Article 8(j) (please provide details below)	X
d) Yes, for the ecosystem approach (please provide details below)	X
e) Yes, for impact assessment, monitoring and indicators (please provide details below)	X
f) Yes, for invasive alien species (please provide details below)	X
g) Yes, for others (please provide details below)	

Further comments on the development of taxonomic support for the implementation of the cross-cutting issues under the Convention.

Taxonomic support is available for the cross-cutting issues whenever required through different institutions and Academia.

Article 8 - *In-situ* conservation [excluding paragraphs (a) to (e), (h) and (j)]

33. ◊ On Article 8(i), has your country endeavored to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components?

a) No	
b) No, but potential measures are being identified	
c) Yes, some measures undertaken (please provide details below)	X
d) Yes, comprehensive measures undertaken (please provide details below)	

Further comments on the measures taken to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components.

All management planning for Protected Areas (PAs) is geared towards providing the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components.

34. ◇ On Article 8(k), has your country developed or maintained the necessary legislation and/or other regulatory provisions for the protection of threatened species and populations?	
a) No	
b) No, but legislation is being developed	
c) Yes, legislation or other measures are in place (please provide details below)	X
Further information on the legislation and/or regulations for the protection of threatened species and populations.	
All wildlife legislation provides for the protection of threatened animal species. Plant species have so far been neglected but indirectly plant species are protected with the habitat protection in PAs. Pakistan also follows CITES regulations and export of CITES listed species is not allowed.	

35. ◇ On Article 8(l), does your country regulate or manage processes and categories of activities identified under Article 7 as having significant adverse effects on biological diversity?	
a) No	
b) No, but relevant processes and categories of activities being identified	
c) Yes, to a limited extent (please provide details below)	X
d) Yes, to a significant extent (please provide details below)	
Further comments on the regulation or management of the processes and categories of activities identified by Article 7 as having significant adverse effects on biodiversity.	
The adverse impacts of large-scale eucalyptus plantation especially in natural forests have been documented and the provincial forest departments under a decision of the federal forestry board have imposed ban on planting Eucalypti in natural forests.	

Box XLIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:	
<ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation 	
The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes.	

Programme of Work on Protected Areas (Article 8 (a) to (e))

36. Has your country established suitable time bound and measurable national-level protected areas targets and indicators? (decision VII/28)	
a) No (please specify reasons)	
b) No, but relevant work is under way	
c) Yes, some targets and indicators established (please provide details below)	X
d) Yes, comprehensive targets and indicators established (please provide details below)	
Further comments on targets and indicators for protected areas.	
<p>The target of enhancing the percentage of protected areas of the country to 12% has been achieved. Time bound and measurable targets and indicators are to be developed under the PAMP project for three national parks i.e. Hingol, Chitral Gol and Machiara national parks. The model shall be followed for other PAs.</p>	

37. Has your country taken action to establish or expand protected areas in any large or relatively unfragmented natural area or areas under high threat, including securing threatened species? (decision VII/28)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, limited actions taken (please provide details below)	X
d) Yes, significant actions taken (please provide details below)	
Further comments on actions taken to establish or expand protected areas.	
<p>New protected areas are being established in un-fragmented natural areas and areas under high threat. In the recent past, four new National Parks have been notified (in NWFP and AJK). The coordination with Forest Departments is a pre-requisite for the establishment of PAs. Such coordination is sought while establishing Pas</p>	

38. Has your country taken any action to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas? (decision VII/28)	
a) No	
b) Not applicable	
c) No, but relevant actions are being considered	
d) Yes, limited actions taken (please provide details below)	X
e) Yes, significant actions taken (please provide details below)	
Further comments on actions taken to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas.	
<p>New Ramsar sites have been notified covering coastal and inland wetlands. Some more wetlands in alpine areas are being examined for Ramsar listing. Initial consultative process for declaration of Marine protected Areas has been initiated by IUCN Karachi office.</p>	

39. Has your country identified and implemented practical steps for improving the integration of protected areas into broader land and seascapes, including policy, planning and other measures? (decision VII/28)	
a) No	
b) No, but some programmes are under development	
c) Yes, some steps identified and implemented (please provide details below)	X
d) Yes, many steps identified and implemented (please provide details below)	
Further comments on practical steps for improving integration of protected areas into broader land and seascapes, including policy, planning and other measures.	
Initial consultative process for declaration of Marine protected Areas has been initiated by IUCN Karachi. The Pakistan Wetlands Project also envisages to assist policy integration of protected areas into broader landscape and seascapes including policy planning and other measures. Broader land use practices are being integrated with the management of Margalla Hills National Park.	

40. Is your country applying environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas? (decision VII/28)	
a) No	
b) No, but relevant EIA guidelines are under development	
c) Yes, EIA guidelines are applied to some projects or plans (please provide details below)	
d) Yes, EIA guidelines are applied to all relevant projects or plans (please provide details below)	X
Further comments on application of environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas.	
In accordance with the Pakistan Environmental Protection Act 1997, EIA is mandatory for all projects in environmentally sensitive areas including PAs.	

41. Has your country identified legislative and institutional gaps and barriers that impede effective establishment and management of protected areas? (decision VII/28)	
a) No	
b) No, but relevant work is under way	
c) Yes, some gaps and barriers identified (please provide details below))	
d) Yes, many gaps and barriers identified (please provide details below)	
Further comments on identification of legislative and institutional gaps and barriers that impede effective establishment and management of protected areas.	
Protected Area System Workshop organized by the Ministry of Environment under the Protected Areas Management Project (PAMP) held during May 2006 identified amongst others the gaps and barriers for the establishment and management of Protected Areas (PAs). Gaps and barriers are identified at the time of management planning for PAs. Legislative and institutional barriers are overcome at the time of establishment of PAs.	

42. Has your country undertaken national protected-area capacity needs assessments and established capacity building programmes? (decision VII/28)	
a) No	
b) No, but assessments are under way	
c) Yes, a basic assessment undertaken and some programmes established (please provide details below)	X
d) Yes, a thorough assessment undertaken and comprehensive programmes established (please provide details below)	
Further comments on protected-area capacity needs assessment and establishment of capacity building programmes.	
In collaboration with IUCN Pakistan and CIDA, a study was conducted to review the status of protected areas / System of the country. A new study is now being planned. Capacity needs assessment is being made under a project of the Ministry of Environment. Some capacity building programmes have been undertaken. A comprehensive programme would follow the recommendations of the said project.	

43. Is your country implementing country-level sustainable financing plans that support national systems of protected areas? (decision VII/28)	
a) No	X
b) No, but relevant plan is under development	
c) Yes, relevant plan is in place (please provide details below)	
d) Yes, relevant plan is being implemented (please provide details below)	
Further comments on implementation of country-level sustainable financing plans that support national systems of protected areas.	
Financing is provided for Protected Areas but it is not sufficient for their adequate management.	

44. Is your country implementing appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance? (decision VII/28)	
a) No	
b) No, but relevant methods, standards, criteria and indicators are under development	
c) Yes, some national methods, standards, criteria and indicators developed and in use (please provide details below)	X
d) Yes, some national methods, standards, criteria and indicators developed and in use and some international methods, standards, criteria and indicators in use (please provide details below)	
Further comments on methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance.	
Monitoring exercise is undertaken to evaluate the effectiveness of management of PAs and all Donor funded projects.	

Box XLV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes

Article 8(h) - Alien species

45. Has your country identified alien species introduced into its territory and established a system for tracking the introduction of alien species?

a) No	
b) Yes, some alien species identified but a tracking system not yet established	X
c) Yes, some alien species identified and tracking system in place	
d) Yes, alien species of major concern identified and tracking system in place	

46. ♦ Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?

a) No	
b) Yes, but only for some alien species of concern (please provide details below)	X
c) Yes, for most alien species (please provide details below)	

Further information on the assessment of the risks posed to ecosystems, habitats or species by the introduction of these alien species.

At national level, no such studies have been undertaken in Pakistan to assess impacts of alien species. However, at micro level it has been assessed that a native of China, Paper Mulberry colonized most of the capital territory and created serious health problems due to its pollen that are allergens.. Introduction of trout fish has badly affected the indigenous fish fauna in Northern Areas. Tilapia has adversely affected fresh water fish population in general. Mesquite has invaded most of the irrigated plantation forests and agricultural lands; it was introduced from Peru, Argentina and Australia in the 1930's. A more holistic approach on a larger scale is required to address the issue. Likewise, among the fish species, tilapia (*Oreochromis aureus* and *O. niloticus niloticus*) has escaped aquaculture and has established on its own in many wetlands in Sindh. While China-Grass Carp introduced in 1970's into Haleji Lake for controlling weeds has reportedly deprived the native herbivorous fish of their food. Some efforts to identify and enlist some of the known problematic species has been made but no cataloguing of alien invasive species or their impact on the local environment is available.

47. ◇ Has your country undertaken measures to prevent the introduction of, control or eradicate, those alien species which threaten ecosystems, habitats or species?	
a) No	X
b) No, but potential measures are under consideration	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures to prevent the introduction of, control or eradicate those alien species that threaten ecosystems, habitats or species.	
<p>Only a ban on the planting of eucalyptus and mesquite has been imposed for plantation in natural forests in most of the provinces. There is no effective mechanism in hand to address this issue however, in Islamabad, Capital Development Authority (CDA) has started taking measures for its (Paper Mulberry) control and gradually complete eradication. Planting of Eucalyptus and Mesquite is discouraged.</p> <p>The Capital Development Authority is taking measures to control the establishments of paper mulberry by mechanical means and replacing them by native species which is not effective and the weed continues to stage a comeback due to its invasive nature. A holistic approach integrating the mechanical chemical and biological means is required which is yet not implemented. Punjab Fisheries Department periodically undertakes eradication programs for problematic invasive fish species from its reservoirs.</p>	

48. ◇ In dealing with the issue of invasive species, has your country developed, or involved itself in, mechanisms for international cooperation, including the exchange of best practices? (decision V/8)	
a) No	X
b) Yes, bilateral cooperation	
c) Yes, regional and/or subregional cooperation	
d) Yes, multilateral cooperation	

49. ◇ Is your country using the ecosystem approach and precautionary and bio-geographical approaches as appropriate in its work on alien invasive species? (decision V/8)	
a) No	X
b) Yes (please provide details below)	
Further comments on the use of the ecosystem approach and precautionary and bio-geographical approaches in work on alien invasive species.	

50. Has your country identified national needs and priorities for the implementation of the Guiding Principles? (decision VI/23)	
a) No	X
b) No, but needs and priorities are being identified	
c) Yes, national needs and priorities have been identified (please provide below a list of needs and priorities identified)	
Further comments on the identification of national needs and priorities for the implementation of the Guiding Principles.	
Impact of alien species on the native fauna & flora of Pakistan has not been properly documented however, in Biodiversity Action Plan (BAP) for Pakistan it is realized that extreme care is required in the selection of species to be introduced to minimize the negative effect on native species. Furthermore, in order to address the issue of invasive species, in "National Environment Policy-2005" under sectoral guidelines on Biodiversity and Protected Areas, it is mentioned that the government may; " prepare a national strategy and action plan for combating spread of invasive species".	

51. Has your country created mechanisms to coordinate national programmes for applying the Guiding Principles? (decision VI/23)	
a) No	X
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please provide details below)	
Further comments on the mechanisms created to coordinate national programmes for implementing the Guiding Principles.	
It has been considered in Pakistan that alien species do not appear to have threatened native flora & fauna. However, now it is believed that introduced plant and animal species may pose threats to the natural ecosystems and species, therefore any mechanism to cope with biodiversity loss should need to be in place. In near future such process will be initiated with the consultation of provinces to develop a necessary mechanism under the guidelines given in decision VI/23.	

52. Has your country reviewed relevant policies, legislation and institutions in the light of the Guiding Principles, and adjusted or developed policies, legislation and institutions? (decision VI/23)	
a) No	x
b) No, but review under way	
c) Yes, review completed and adjustment proposed (please provide details below)	
d) Yes, adjustment and development ongoing	
e) Yes, some adjustments and development completed (please provide details below)	
Further information on the review, adjustment or development of policies, legislation and institutions in light of the Guiding Principles.	
Pakistan drafted a Model Wildlife Law to meet the challenges of biodiversity loss. It has been developed in accordance with CITES & other Multilateral Environmental Agreements (MEAs) covering the issue of alien species. Similarly, on the same lines wildlife department of NWFP has also completed revision of its Wildlife Protection, Conservation and Management Act, 1975. Other existing relevant legislations and Policies will also be reviewed in due course of time to update them according to the requirement of International Conventions. The Model Law addresses the issue of Alien Invasive species.	

53. Is your country enhancing cooperation between various sectors in order to improve prevention, early detection, eradication and/or control of invasive alien species? (decision VI/23)

a) No	
b) No, but potential coordination mechanisms are under consideration	X
c) Yes, mechanisms are in place (please provide details below)	

Further comments on cooperation between various sectors.

Even though the realization exists, such steps have not so far been taken and potential coordination mechanisms are under consideration.

The issue of the invasion by the alien species has a recent recognition in Pakistan. Research institutes and universities (Punjab University Lahore and Quaid-i-Azam University, Islamabad) have taken up small scale projects to improve prevention or eradication of invasive species. CABI-Pakistan has initiated projects for the control of whitehead (*Parthenium*) and Water Hyacinth – another deadly invasive water plant.

54. Is your country collaborating with trading partners and neighboring countries to address threats of invasive alien species to biodiversity in ecosystems that cross international boundaries? (decision VI/23)

a) No	x
b) Yes, relevant collaborative programmes are under development	
c) Yes, relevant programmes are in place (please specify below the measures taken for this purpose)	

Further comments on collaboration with trading partners and neighboring countries.

Only quarantine measures are adopted at the ports of entry.

55. Is your country developing capacity to use risk assessment to address threats of invasive alien species to biodiversity and incorporate such methodologies in environmental impact assessment (EIA) and strategic environmental assessment (SEA)? (decision VI/23)

a) No	X
b) No, but programmes for this purpose are under development	
c) Yes, some activities for developing capacity in this field are being undertaken (please provide details below)	
d) Yes, comprehensive activities are being undertaken (please provide details below)	

Further information on capacity development to address threats of invasive alien species.

EIA rules and procedures under Pakistan environmental protection Act 1997 have been notified. The first Strategic Environmental Assessment for Pakistan was conducted in 2005. Critical review for assessing the effectiveness vis a vis biodiversity specifically in accordance with Decision VI/23 has not been made.

56. Has your country developed financial measures and other policies and tools to promote activities to reduce the threats of invasive species? (decision VI/23)

a) No	x
b) No, but relevant measures and policies are under development	
c) Yes, some measures, policies and tools are in place (please provide details below)	
d) Yes, comprehensive measures and tools are in place (please provide details below)	
Further comments on the development of financial measures and other policies and tools for the promotion of activities to reduce the threats of invasive species.	

Box XLVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

There has been no national strategy developed so far for the control of introduced or invasive species in Pakistan. Unfortunately, no systematic studies in this regard have been conducted on these problem species and their impact on the overall environment. This is probably due to a lack of sensitivity on the issue. A well thought approach is required to address this issue in Pakistan and a nation wide assessment of invasive alien species both flora and fauna has to be carried out by a host national institution.

The impact assessment of invasive species has not been done so far. No authentic cataloging is available, however it is believed that around 1000 alien species of flora and fauna are found in Pakistan. Of these other than agricultural insect pests, no mega animal species is recognized as invasive. Few plant species could be recognized as invasive or potential invasive species. These are

<i>Broussonetia papyrifera</i>	(Family: Moraceae)
<i>Prosopis juliflora</i>	(Family: Mimosaceae)
<i>Lantana camara</i>	(Family: Verbenaceae)
<i>Parthenium hysterophorus</i>	(Family: Compositae)
<i>Cannabis sativa</i>	(Family: Cannabaceae)
<i>Prosopis glandulosa</i>	(Family: Fabaceae)
<i>Ipomoea carnea</i>	(Family: Convolvulaceae)
<i>Robinia pseudoacacia,</i>	(Family: Fabaceae)
<i>Eucalyptus camaldulensis</i>	(Family: Myrtaceae)
<i>Emex spinosa</i>	(Family: Polygonaceae)
<i>Galium aparine</i>	(Family: Rubiaceae)
<i>Xanthium strumarium</i>	(Family: Compositae)
<i>Leucanea leucocephala</i>	(Family: Mimosaceae)
<i>Lolium temulentum</i>	(Family: Gramineae)
<i>Eichhornia crassipes</i>	(Family: Pontederiaceae)
<i>Salvinia molesta</i>	(Family: Salviniaceae)
<i>Pistia stratiotes</i>	(Family: Araceae)

Some of the major invasive species are discussed hereunder :

PAPER MULBERRY (*Broussonetia papyrifera*)

A native of China, Paper mulberry was introduced in the 1960s in the plains and hills with the

purpose to enhance green cover. Now this species is widely found in Islamabad, Peshawar and Lahore areas. In hilly areas of Islamabad, it has become a weed and created health problem due to its pollen spread which is identified as a main source of allergy. According to IUCN- The world conservation union, Paper mulberry is the worst exotic invasive plant, which can quickly colonize disturbed areas. Now measures for its control are in practice.

MESQUITE OR DEVI (*Prosopis juliflora*)

Two species of *Prosopis*, commonly called devi or mesquite have been widely introduced in southern Pakistan including Sindh and Balochistan and now has become a pest in many sensitive habitats. It has been observed that at various places it has started replacing indigenous species such as *Tamarix*, *Acacia* and other native shrubs. Necessary control measures are required to restrict the invasion of exotic *Prosopis* species in sensitive areas particularly in protected areas, such as Khirthar national park, Hingol national park etc.

AILANTHUS OR TREE OF HEAVEN (*Ailanthus altissima*)

A native of China, *Ailanthus* was introduced in early 1970s. At present, it is growing along the roads and other naturally disturbed habitats of northern Pakistan. *Ailanthus* already created a lot of problems in USA and Canada as invasive species because it produces abundant root sprouts that can develop into extensive thickets and displace native vegetation. In Pakistan, its impact as non-native species is yet to be evaluated.

ROBINIA (*Robinia pseudoacacia*)

A native of North America introduced in early 1990s in the hilly areas of northern Pakistan mainly along the road-sides and stream bottoms. It is feared by some experts that its rapidly growing stands may displace native vegetation particularly pine forests. Its assessment as an invasive tree is needed to be done at the earliest.

LANTANA (*Lantana camara*)

One among the world's worst 100 invasive weed, *Lantana* has extensively invaded the countryside by forming pure continuous thickets. It not only replaces the native vegetation but also repels the associated fauna by its strong odour. *Lantana* has entirely changed the vegetation picture of certain areas in Punjab and the Federal Capital.

SALVANIA (*Salvinia molesta*) and **WATER HYACINTH** (*Eichhornia crassipes*)

Salvania and water hyacinth species have established as weeds in various water bodies of the country. The spread of the species has caused problems in some of the wetlands particularly in Kinjhar lake Wildlife Sanctuary- A Ramsar site.

PARTHENIUM (*Parthenium hysterophorus*)

A native of North Central America was probably introduced into the plains of Pakistan in late nineties through India where it was reported much earlier. The species has replaced the native vegetation and show vigorous growth by forming thick continuous mats along the roadsides in many cities of the country

The known introduction of faunal species include sheep, cow, shell-fish, silver carp, china grass-carp, tilapia, rainbow trout, poultry species. Among other exotic animals are budgerigars, lovebirds, parakeets, pheasants, peafowl, turtles, cats, dogs and various species of livestock.

There is virtually no awareness on this important issue among general public and policy makers, therefore awareness on the dangers and adverse impacts of alien species is required to be created.

The Biodiversity Action Plan (BAP) of Pakistan deals with alien species problem very superficially. The action 6.6 of BAP reads as; "Take measures to control invasive alien species of fauna and flora, and to prevent further introduction".

To achieve Millennium Development Goals (MDGs), Pakistan has made some headway regarding environmental sustainability and reducing environmental degradation by promoting indigenous species.

Since Pakistan is signatory of CBD and other MEAs, these agreements obliges countries to undertake necessary control measures to prevent the spread of invasive alien species, pests and diseases. Well-established quarantine facilities are required to be developed to cope with the danger of invasive invasion.

Article 8(j) - Traditional knowledge and related provisions

GURTS

57. Has your country created and developed capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities, and other relevant stakeholders to effectively participate in decision-making processes related to genetic use restriction technologies?

a) No	
b) No, but some programmes are under development	x
c) Yes, some programmes are in place (please provide details below)	
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments on capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities and other relevant stakeholders to effectively participate in decision-making processes related to GURTs.

The Plant Breeders Rights Act (draft) has been developed that includes ban on use of GURTS however there are no specific provisions for the involvement of smallholder farmers, indigenous and local communities, and other relevant stakeholders to effectively participate in decision-making processes related to genetic use restriction technologies. The Biodiversity directorate has developed a project for the implementation of Bonn Guidelines in Pakistan and SDPI that has provisions of involving the local communities and small scale farmers in the decision making processes. Inter Cooperation, a non profit organization, is also implementing a project in three districts of the NWFP by involving the local communities.

Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. These fora can be effectively involved in decision making processes related to genetic use restriction techniques.

Status and Trends

58. Has your country supported indigenous and local communities in undertaking field studies to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities? (decision VII/16)

a) No	
b) No, but support to relevant studies is being considered	
c) Yes (please provide information on the studies undertaken)	X

Further information on the studies undertaken to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities, and priority actions identified.

A three year project has been initiated by PMNH entitled "Documentation of Indigenous Knowledge about Medicinal Plants of Pakistan" now entered in its final year. This project is meant to undertake field studies to determine the status, trends and threats related to the knowledge, innovations and practices of Medicinal plant use by indigenous and local communities. However, Inter-cooperation

and SDPI are implementing small projects in select districts of the NWFP.

Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas. Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. These fora can be effectively involved in decision making processes related to the knowledge, innovations, and practices of indigenous and local communities.

Akwé:Kon Guidelines

59. Has your country initiated a legal and institutional review of matters related to cultural, environmental and social impact assessment, with a view to incorporating the Akwé:Kon Guidelines into national legislation, policies, and procedures?

a) No	x
b) No, but review is under way	
c) Yes, a review undertaken (please provide details on the review)	

Further information on the review.

Not directly under the Akwe Kohn Guidelines. However, the EIA Rules have been notified under the Pakistan Environmental Act 1997, these comprehensive Rules cover most of the provisions provided in the Akwe Kohn Guidelines.

60. Has your country used the Akwé:Kon Guidelines in any project proposed to take place on sacred sites and/or land and waters traditionally occupied by indigenous and local communities? (decision VII/16)

a) No	
b) No, but a review of the Akwé: Kon guidelines is under way	
c) Yes, to some extent (please provide details below)	X
d) Yes, to a significant extent (please provide details below)	

Further information on the projects where the Akwé:Kon Guidelines are applied.

The EIA Rules and Guidelines in Pakistan are elaborate, it is mandatory for all mega projects to undertake IEE, EA and EIA. Examples of projects where EIA including public hearings were undertaken are the oil exploration in Kirhtar National Park, Motor ways planned by National Highways Authority and lastly the New Murree project, and the Supreme Court of Pakistan had taken a suo moto notice in the last case. Public Hearings of EIAs are now a regular feature that is widely publicized in the press.

Capacity Building and Participation of Indigenous and Local Communities

61. Has your country undertaken any measures to enhance and strengthen the capacity of indigenous and local communities to be effectively involved in decision-making related to the use of their traditional knowledge, innovations and practices relevant to the conservation and sustainable use of biodiversity? (decision V/16)

a) No	
b) No, but some programmes being developed	x
c) Yes, some measures taken (please provide details below)	
d) Yes, comprehensive measures taken (please provide details below)	

Further information on the measures to enhance and strengthen the capacity of indigenous and local communities.

The MACP has organized and established many community organizations in the four conservancies of the project area to enhance and strengthen their capacity to be effectively involved in decision making to conservation and sustainable use; however more work is needed on TK, innovations and practices. AKRSP has worked in the Northern Areas also by organizing Community organizations. The WWF and the Wildlife departments have organized communities for the trophy hunting programs in the NAs and the NWFP.

Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. These fora can be effectively involved in decision-making processes related to conservation and sustainable use of biodiversity by using their traditional knowledge, innovations and practices.

62. Has your country developed appropriate mechanisms, guidelines, legislation or other initiatives to foster and promote the effective participation of indigenous and local communities in decision making, policy planning and development and implementation of the conservation and sustainable use of biodiversity at international, regional, subregional, national and local levels? (decision V/16)

a) No	X
b) No, but relevant mechanisms, guidelines and legislation are under development	
c) Yes, some mechanisms, guidelines and legislation are in place (please provide details below)	

Further information on the mechanisms, guidelines and legislation developed.

Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. These fora can be effectively involved in decision-making processes related to conservation and sustainable use of biodiversity by using their traditional knowledge, innovations and practices.

Legislation is being revised to include the interventions in the NWFP Wildlife Act.

63. Has your country developed mechanisms for promoting the full and effective participation of indigenous and local communities with specific provisions for the full, active and effective participation of women in all elements of the programme of work? (decision V/16, annex)

a) No	
b) No, but relevant mechanisms are being developed	x
c) Yes, mechanisms are in place (please provide details below)	

Further comments on the mechanisms for promoting the full and effective participation of women of indigenous and local communities in all elements of the programme of work.

The Pakistan Environment Policy 2005 and the Gender Policy as well as all sectoral policies invariably have a section for the involvement of women in all sectors of life including biodiversity conservation, forestry etc. All the major projects encourage women participation in the developmental activities of the country.

Support to implementation

64. Has your country established national, subregional and/or regional indigenous and local community biodiversity advisory committees?	
a) No	
b) No, but relevant work is under way	
c) Yes	x

65. Has your country assisted indigenous and local community organizations to hold regional meetings to discuss the outcomes of the decisions of the Conference of the Parties and to prepare for meetings under the Convention?	
a) No	x
b) Yes (please provide details about the outcome of meetings)	
Further information on the outcome of regional meetings.	
Village and Valley Conservation Committees have been established in some parts of Pakistan. Regional meetings are held to discuss biodiversity conservation issues that may not be geared towards decisions of the COP or the Convention.	

66. Has your country supported, financially and otherwise, indigenous and local communities in formulating their own community development and biodiversity conservation plans that will enable such communities to adopt a culturally appropriate strategic, integrated and phased approach to their development needs in line with community goals and objectives?	
a) No	
b) Yes, to some extent (please provide details below)	
c) Yes, to a significant extent (please provide details below)	x
Further information on the support provided.	
Community based management plans have been prepared for the Joint Forest Management in the NWFP with financial support of donor funded/ national funded projects. This includes the Mountain Areas Conservancy Project (MACP) programme of work.	
Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. Some communities have formulated their own community development and conservation plans that enable such communities to adopt a culturally appropriate strategic, integrated and phased approach to their development needs in line with community goals and objectives. In some cases, these plans have been implemented and a clear change can be seen on the ground, while in some other cases these are still under implementation.	

Box XLVII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes

Article 9 - *Ex-situ* conservation

67. ◇ On Article 9(a) and (b), has your country adopted measures for the *ex-situ* conservation of components of biological diversity native to your country and originating outside your country?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures adopted for the *ex-situ* conservation of components of biodiversity native to your country and originating outside your country.

To conserve Agricultural Biodiversity more than 20,000 accessions have been conserved at Plant Genetic Breeding Centre, NARC, also at NARC, semen of local livestock breeds has been preserved. The research organizations and academia have established small Botanical Gardens and Herbaria throughout the country. Zoos and Wildlife Parks house large mammal and bird collections. Recreational gardens and parks also are a means to provide habitat for the bird fauna.

68. ◇ On Article 9(c), has your country adopted measures for the reintroduction of threatened species into their natural habitats under appropriate conditions?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	x
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for the reintroduction of threatened species into their natural habitats under appropriate conditions.

Green turtles conservation project is on-going since 1980 in coastal areas of Sindh. Projects for the conservation and reintroduction of Mahasher (*Tor tor*), Hilsa (*Ilisha ilisha*) and even Marsh Crocodile have been started. A programme to reintroduce Chir pheasant in Margalla Hills National Park was started in 1970s which however did not meet success. Reintroduction of Chinkara gazelle and Blackbuck antelope in Cholistan started in 2004 is so far running smoothly. There is a programme on conservation of snow trout and freshwater loaches are in the pipeline.

69. ◇ On Article 9(d), has your country taken measures to regulate and manage the collection of biological resources from natural habitats for ex-situ conservation purposes so as not to threaten ecosystems and in-situ populations of species?

a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to regulate and manage the collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species.

Box XLVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes

Article 10 - Sustainable use of components of biological diversity

70. ◇ On Article 10(a), has your country integrated consideration of the conservation and sustainable use of biological resources into national decision-making?

a) No	
b) No, but steps are being taken	
c) Yes, in some relevant sectors (please provide details below)	
d) Yes, in most relevant sectors (please provide details below)	X

Further information on integrating consideration of conservation and sustainable use of biological resources into national decision-making.

Sustainable use/ yield form the basis of all management plans/ forest working plans in Pakistan. The law provides that no harvesting can take place from any forest area unless the government has approved a sustainable management plan. The fisheries harvesting/ auctions also follow the principle of sustainability; there are complete bans on netting during the breeding season and use of small mesh nets. Wildlife wherever legally harvested follows the principle of sustainability. Efforts are also made to utilize the rangelands on a sustained management basis. Some of the traditional systems applied in the management of livestock and rangelands follow the same principle.

71. ◇ On Article 10(b), has your country adopted measures relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity?

a) No	x
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures adopted relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity.	
All the actions mentioned under para 70 address this article. Biological resources are used in a way so as to ensure, avoid or minimize adverse impacts on biological diversity.	

72. ◊ On Article 10(c), has your country put in place measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	x
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements.	
<p>The customary use of forest resources by the local communities has been accepted in the forest settlements that form the basis of management of all state controlled forest areas (except the plantations). Traditional rights of the local communities like access to water, right of way, grass cutting, cattle grazing and firewood collection are given legal protection for each forest area. For private forests and grazing lands the owners enjoy full rights of ownership except what is banned by the government for the sake of environmental protection.</p> <p>Customary use of rangeland resources in Balochistan is made through the traditional institutions that are playing their pivotal role. These traditional institutions have kept such systems of resource use in tact and they guarantee their longevity.</p>	

73. ◊ On Article 10(d), has your country put in place measures that help local populations develop and implement remedial action in degraded areas where biological diversity has been reduced?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures that help local populations develop and implement remedial action in degraded areas where biodiversity has been reduced.	
Some donor funded projects like Mountain Areas Conservancy Project (MACP) and Protected Areas Management Planning Project (PAMP) have undertaken measures that help local communities devise their own management plans, and have implemented them in degraded areas and such plans have met with success.	

74. ◇ Has your country identified indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity? (decision V/24)	
a) No	
b) No, but assessment of potential indicators and incentive measures is under way	
c) Yes, indicators and incentive measures identified (please describe below)	X
Further comments on the identification of indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity.	
Indicators and incentive measures like Trophy hunting developed in Northern Areas and NWFP have found acceptance and replication in other provinces, have been effective in the conservation and sustainable use of Biodiversity.	

75. ◇ Has your country implemented sustainable use practices, programmes and policies for the sustainable use of biological diversity, especially in pursuit of poverty alleviation? (decision V/24)	
a) No	
b) No, but potential practices, programmes and policies are under review	
c) Yes, some policies and programmes are in place (please provide details below)	
d) Yes, comprehensive policies and programmes are in place (please provide details below)	X
Further information on sustainable use programmes and policies.	
The nexus between poverty and environment is duly recognized in the Pakistan Environment policy 2005 and the National Environmental Action Program (NEAP). All forestry and biodiversity related projects include the pursuit of poverty alleviation while implementing biodiversity related projects.	

76. ◇ Has your country developed or explored mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity? (decision V/24)	
a) No	
b) No, but mechanisms are under development	X
c) Yes, mechanisms are in place (please describe below)	
Further comments on the development of mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity.	
There is strong Public Private partnership in the field of tree plantation by the involvement of the Pakistan Tobacco Company that runs a massive tree plantation campaign in collaboration with the forestry departments. The concept of Corporate Social responsibility has also taken root in the post WSSD era; the oil companies invariably show environmental sensitivity during and after the EIA phase. The ICI soda ash factory at Khewra has a massive plantation project. Attock Oil refinery has established a biodiversity park and is endeavoring to develop an ex situ conservation project of ecosystem of the sub tropical scrub forests. The Biodiversity park has been established by a partnership between UNESCAP, Attock Oil refinery and the Government of Pakistan. The Pakistan Tobacco Company is also in an advanced stage of developing its Biodiversity programme.	

77. Has your country initiated a process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)	
a) No	
b) No, but the principles and guidelines are under review	
c) Yes, a process is being planned	X
d) Yes, a process has been initiated (please provide detailed information)	
Further information on the process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.	
Sustainable use/ yield form the basis of all management plans/ forest working plans in Pakistan. The law provides that no harvesting can take place from any forest area unless the government has approved a sustainable management plan. The fisheries harvesting/ auctions also follow the principle of sustainability; there are complete bans on netting during the breeding season and use of small mesh nets. Wildlife wherever legally harvested follows the principle of sustainability. Efforts are also made to utilize the rangelands on a sustained management basis. Some of the traditional systems applied in the management of livestock and rangelands follow the principle. Addis Ababa Guidelines as such are not well known in the environment/ biodiversity community as such however the overall spirit of the Guidelines are well incorporated in the work plans of the different projects.	

78. Has your country taken any initiative or action to develop and transfer technologies and provide financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, some technologies developed and transferred and limited financial resources provided (please provide details below)	X
d) Yes, many technologies developed and transferred and significant financial resources provided (please provide details below)	
Further comments on the development and transfer of technologies and provision of financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.	

Biodiversity and Tourism

79. ♦ Has your country established mechanisms to assess, monitor and measure the impact of tourism on biodiversity?	
a) No	
b) No, but mechanisms are under development	X
c) Yes, mechanisms are in place (please specify below)	
d) Yes, existing mechanisms are under review	
Further comments on the establishment of mechanisms to assess, monitor and measure the impact of tourism on biodiversity.	
There is an enhanced degree of sensitivity on the negative impacts of tourism on biodiversity; this was highlighted during 2002 while celebrating the International Year of the Mountain (IYM). Many meetings of the stakeholders including the Ministry of Tourism, Ministry of Environment, NGOs and	

environmental agencies were held for the preparation for the 4th UNEP Governing Council meeting 2006 at Dubai. The Adventure Foundation of Pakistan has a regular program for involving the youth in mountain clean up campaigns. The MACP has made baseline studies on the impacts of tourism on biodiversity and has also promoted the concept of eco-tourism in selected sites. The negative impacts of tourism especially of the hotel industry on river Swat are well documented.

Although a National Steering committee for the IYM was established but there has been little success in establishing mechanisms to assess, monitor and measure the impacts of tourism on biodiversity.

80. ◇ Has your country provided educational and training programmes to the tourism operators so as to increase their awareness of the impacts of tourism on biodiversity and upgrade the technical capacity at the local level to minimize the impacts? (decision V/25)

a) No	
b) No, but programmes are under development	
c) Yes, programmes are in place (please describe below)	X

Further comments on educational and training programmes provided to tourism operators.

The Adventure Foundation of Pakistan has conducted some training programs for tour operators from their project funds (Indus Dolphin Project under GEF medium grant). Similarly, MACP has developed some training programs for eco-tourism. However, there are no permanent programs for training of tour operators. The NWFP forest department and WWF Pakistan also run a few eco-tourism projects.

81. Does your country provide indigenous and local communities with capacity-building and financial resources to support their participation in tourism policy-making, development planning, product development and management? (decision VII/14)

a) No	
b) No, but relevant programmes are being considered	
c) Yes, some programmes are in place (please provide details below)	X
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments in the capacity-building and financial resources provided to indigenous and local communities to support their participation in tourism policy-making, development planning, product development and management.

Many NGOs and Rural Support Programmes, GEF funded projects have worked at the grass root level for organization of communities in rural areas. Such community organizations through awareness raising programmes are now in a position of decision making and running their businesses at their own. These fora can be effectively involved in decision-making processes related to tourism. They can also be effective in policymaking, development planning, and management.

82. Has your country integrated the Guidelines on Biodiversity and Tourism Development in the development or review of national strategies and plans for tourism development, national biodiversity strategies and action plans, and other related sectoral strategies? (decision VII/14)

a) No, but the guidelines are under review	x
b) No, but a plan is under consideration to integrate some principles of the guidelines into relevant strategies	
c) Yes, a few principles of the guidelines are integrated into some	

sectoral plans and NBSAPs (please specify which principle and sector)	
d) Yes, many principles of the guidelines are integrated into some sectoral plans and NBSAPs (please specify which principle and sector)	
Further information on the sectors where the principles of the Guidelines on Biodiversity and Tourism Development are integrated.	
The Ministries of Environment and Tourism are in contact for the development of guidelines.	

Box XLIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, most of the COP decisions could not be fully addressed due to manpower and capacity gaps.

Article 11 - Incentive measures

83. ♦ Has your country established programmes to identify and adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity?	
a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place (please provide details below)	x
d) Yes, comprehensive programmes are in place (please provide details below)	
Further comments on the programmes to identify and adopt incentives for the conservation and sustainable use of biodiversity.	
Community Based Trophy Hunting Programme (CBTHP) is under implementation. Under CBTHP, the local communities are getting 80% of the income. Local communities use this income for conservation activities and social uplift initiatives. The CBTHP is being considered as successful programme and resulted in to not only increase in number of wild ungulate species (Markhor, Ibex, Blue sheep, Urial and Sindh goat) , but also has helped in habitat improvement.	

84. ♦ Has your country developed the mechanisms or approaches to ensure adequate incorporation of both market and non-market values of biological diversity into relevant plans, policies and programmes and other relevant areas? (decisions III/18 and IV/10)	
a) No	
b) No, but relevant mechanisms are under development	
c) Yes, mechanisms are in place (please provide details below)	x
d) Yes, review of impact of mechanisms available (please provide details)	

below)	
Further comments on the mechanism or approaches to incorporate market and non-market values of biodiversity into relevant plans, policies and programmes.	
As explained earlier, a CBTHP is under implementation. To get the maximum incentive for the local communities, the minimum hunting fees for different wild ungulates have been fixed. The minimum fee for different species is as follow;	
Markhor-US\$25000, Punjab Urial- US\$10000, Balochistan Urial- US\$8000, Sindh Urial-US\$15000,Blue sheep- US\$5000, Himalayan Ibex- US\$2000, and Sindh Wild Goat- US\$2000.	

85. ◇ Has your country developed training and capacity-building programmes to implement incentive measures and promote private-sector initiatives? (decision III/18)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place	X
d) Yes, many programmes are in place	

86. Does your country take into consideration the proposals for the design and implementation of incentive measures as contained in Annex I to decision VI/15 when designing and implementing incentive measures for the conservation and sustainable use of biodiversity? (decision VI/15)	
a) No	x
b) Yes (please provide details below)	
Further information on the proposals considered when designing and implementing the incentive measures for the conservation and sustainable use of biodiversity.	

87. Has your country made any progress in removing or mitigating policies or practices that generate perverse incentives for the conservation and sustainable use of biological diversity? (decision VII/18)	
a) No	X
b) No, but identification of such policies and practices is under way	
c) Yes, relevant policies and practices identified but not entirely removed or mitigated (please provide details below)	
d) Yes, relevant policies and practices identified and removed or mitigated (please provide details below)	
Further information on perverse incentives identified and/or removed or mitigated.	

Box L.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, most of the COP decisions could not be fully addressed due to manpower and capacity gaps.

Article 12 - Research and training

88. ◊ On Article 12(a), has your country established programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components?

a) No	
b) No, but programmes are under development	
c) Yes, programmes are in place (please provide details below)	X

Further information on the programmes for scientific and technical education and training in the measures for identification, conservation and sustainable use of biodiversity.

Regular trainings in Forest and rangelands management, Wildlife management, Fisheries management, Agriculture include the basic knowledge about Biodiversity. Research in these fields is also oriented towards the conservation and sustainable use of Biodiversity. Besides this many occasional training programmes are run by various organizations for technical and scientific education for the identification, conservation and sustainable use of biological diversity and its components. The organizations include the Pakistan Forest Institute Peshawar, the National Agricultural Research Council, National Institute of Biotechnology and Genetic Engineering, Zoological Survey Department, National Agricultural Institute, Fisheries Research Institute, and the NGOs like WWF and IUCN. However, no regular system that is measurable, time bound and quantifiable is in place.

89. ◊ On Article 12(b), does your country promote and encourage research which contributes to the conservation and sustainable use of biological diversity?

a) No	
b) Yes (please provide details below)	X

Further information on the research which contributes to the conservation and sustainable use of biodiversity.

Pakistan Forest Institute, National Agriculture Research Centre, Punjab Wildlife and Forest Institute conduct research in this direction but the findings still need to be disseminated to the implementing agencies. A strong coordination among the research and implementing agencies is of utmost importance because in biodiversity related issues most of the problems are related to the implementation of research findings at the grass root level. Only a strong coordination among the research and implementing agencies can lead to the proper identification, conservation and sustainable use of biological diversity and its components.

The WWF Small Grants program supports such research by providing research grants to individuals

and organizations. The Pakistan Science Foundation also provides funds for research that contributes to the conservation and sustainable use of biological diversity. However there is no mechanism to capture all this activity for the purpose of reporting to the CBD Secretariat

90. ◇ On Article 12(c), does your country promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources?

a) No

b) Yes (please provide details below)

X

Further information on the use of scientific advances in biodiversity research in developing methods for conservation and sustainable use of biodiversity.

Related Research Institutes like PFI, NARC regularly use the scientific advances in Biodiversity research in developing methods for conservation and sustainable use of biological resources.

Box LI.

Please elaborate below on the implementation of this article specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, the newly created Biodiversity Directorate is making efforts to implement the COP decisions, the strategy adopted with the limited resources is to communicate the decisions to the concerned provincial and federal institutions.

Article 13 - Public education and awareness

91. Is your country implementing a communication, education and public awareness strategy and promoting public participation in support of the Convention? (Goal 4.1 of the Strategic Plan)

a) No

b) No, but a CEPA strategy is under development

c) Yes, a CEPA strategy developed and public participation promoted to a limited extent (please provide details below)

d) Yes, a CEPA strategy developed and public participation promoted to a significant extent (please provide details below)

X

Further comments on the implementation of a CEPA strategy and the promotion of public participation in support of the Convention.

There is no specific CEPA strategy for Goal 4.1 per se; however, there are standalone CEPA strategies and action plans of various organizations like the WWF Pakistan and IUCN-P while the Ministry of Environment is implementing a mass awareness project that includes activities that support the Convention. All natural resource management departments both in federal and provincial governments run awareness campaigns to promote public participation indirectly in support of the convention.

92. Is your country undertaking any activities to facilitate the implementation of the programme of work on Communication, Education and Public Awareness as contained in the annex to decision VI/19? (decision VI/19)	
a) No	
b) No, but some programmes are under development	
c) Yes, some activities are being undertaken (please provide details below)	X
d) Yes, many activities are being undertaken (please provide details below)	
Further comments on the activities to facilitate the implementation of the programme of work on CEPA.	
<p>All departments both in federal and provincial governments that deal with natural resources run awareness campaigns to promote public participation indirectly in support of the convention. Various authors occasionally publish biodiversity related articles in the national press. At times, the press issues special supplements on the occasions of the national tree planting campaigns that also promote the provisions of the convention. Allforesters mailing list is the largest electronic mailing network in the country; other mailing lists include the AFP and natureconservation.org. The IUCN 'NCS Jareeda' and the WWF 'Natura' are also regular environmental magazines that also promote the convention. Moreover, there is a lot of print material generated by MACP and other projects on biodiversity issues. WWF P and others publish lots of biodiversity educational material for schools. MACP has also published a book on the CBD in Pakistan's perspective in the national language Urdu.</p>	

93. Is your country strongly and effectively promoting biodiversity-related issues through the press, the various media and public relations and communications networks at national level? (decision VI/19)	
a) No	
b) No, but some programmes are under development	
c) Yes, to a limited extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	X
Further comments on the promotion of biodiversity-related issues through the press, the various media and public relations and communications networks at national level.	
<p>Various authors occasionally publish biodiversity related articles in the national press. Occasionally the press issues special supplements on the occasion of the national tree planting campaigns that also promote the provisions of the convention. Allforesters mailing list is the largest electronic mailing network in the country; other mailing lists include, Allforesters, the AFP and natureconservation.org. The IUCN 'NCS Jareeda' and the WWF 'Natural' are also regular environmental magazines that also promote the convention. Moreover, there is a lot of print material generated by MACP and other projects on biodiversity issues. WWF P and others publish lots of biodiversity educational material for schools. MACP has also published a book on the CBD in Pakistan's perspective in the national language Urdu.</p>	

94. Does your country promote the communication, education and public awareness of biodiversity at the local level? (decision VI/19)	
a) No	
b) Yes (please provide details below)	X
Further information on the efforts to promote the communication, education and public awareness of biodiversity at the local level.	

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95. Is your country supporting national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness? (decision VI/19)	
a) No	X
b) No, but some programmes are under development	
c) Yes, some activities supported (please provide details below)	
d) Yes, many activities supported (please provide details below)	
Further comments on the support of national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness.	

96. Has your country developed adequate capacity to deliver initiatives on communication, education and public awareness?	
a) No	
b) No, but some programmes are under development	
c) Yes, some programmes are being implemented (please provide details below)	X
d) Yes, comprehensive programmes are being implemented (please provide details below)	
Further comments on the development of adequate capacity to deliver initiatives on communication, education and public awareness.	

97. Does your country promote cooperation and exchange programmes for biodiversity education and awareness at the national, regional and international levels? (decisions IV /10 and VI/19)	
a) No	X
b) Yes (please provide details below)	
Further comments on the promotion of cooperation and exchange programmes for biodiversity education and awareness, at the national, regional and international levels.	
Exchange and cooperation programmes are undertaken at project and national level.	

98. Is your country undertaking some CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention?	
a) No (please specify reasons below)	
b) Yes, some activities undertaken for some issues and thematic areas (please provide details below)	X
c) Yes, many activities undertaken for most issues and thematic areas (please provide details below)	
d) Yes, comprehensive activities undertaken for all issues and thematic	

areas (please provide details below)	
Further comments on the CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention.	
All awareness and educational campaigns include activities to address cross-cutting issues and thematic programmes.	

99. ◊ Does your country support initiatives by major groups, key actors and stakeholders that integrate biological diversity conservation matters in their practice and education programmes as well as into their relevant sectoral and cross-sectoral plans, programmes and policies? (decision IV/10 and Goal 4.4 of the Strategic Plan)	
a) No	
b) Yes (please provide details below)	X
Further comments on the initiatives by major groups, key actors and stakeholders that integrate biodiversity conservation in their practice and education programmes as well as their relevant sectoral and cross-sectoral plans, programmes and policies.	
The Ministry of Environment extends cooperation to the academia, NGOs, students and communities on their ongoing activities on biological diversity conservation. Such support is significant at the occasion of celebration of World Biodiversity Day and the World Environment Day. Recent support was on the celebration of World Biodiversity Day on the theme of Dry land Biodiversity.	

100. Is your country communicating the various elements of the 2010 biodiversity target and establishing appropriate linkages to the Decade on Education for Sustainable Development in the implementation of your national CEPA programmes and activities? (decision VII/24)	
a) No	x
b) No, but some programmes are under development	
c) Yes, some programmes developed and activities undertaken for this purpose (please provide details below)	
d) Yes, comprehensive programmes developed and many activities undertaken for this purpose (please provide details below)	
Further comments on the communication of the various elements of the 2010 biodiversity target and the establishment of linkages to the Decade on Education for Sustainable Development.	
Programmes though implemented but they are not oriented per se towards the 2010 targets and to the Decade on Education for sustainable Development.	

Box LII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:	
<ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation. 	
The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, most of the COP decisions could not be fully addressed due to manpower and capacity gaps	

Article 14 - Impact assessment and minimizing adverse impacts

101. ◇ On Article 14.1(a), has your country developed legislation requiring an environmental impact assessment of proposed projects likely to have adverse effects on biological diversity?

a) No	
b) No, legislation is still in early stages of development	
c) No, but legislation is in advanced stages of development	
d) Yes, legislation is in place (please provide details below)	X
e) Yes, review of implementation available (please provide details below)	

Further information on the legislation requiring EIA of proposed projects likely to have adverse effects on biodiversity.

As provided in Pakistan Environmental Protection Act 1997, EIA in environmentally sensitive areas and IEE in rest of the areas are mandatory for any developmental activity.

102. ◇ On Article 14.1(b), has your country developed mechanisms to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biological diversity?

No	
No, mechanisms are still in early stages of development	
No, but mechanisms are in advanced stages of development	X
Yes, mechanisms are in place (please provide details below)	

Further comments on the mechanisms developed to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biodiversity.

The EIA and IEE results are duly considered and steps are taken to ameliorate the situation and / or mitigate the adverse impacts on biodiversity.

103. ◇ On Article 14.1(c), is your country implementing bilateral, regional and/or multilateral agreements on activities likely to significantly affect biological diversity outside your country's jurisdiction?

a) No	X
b) No, but assessment of options is in progress	
c) Yes, some completed, others in progress (please provide details below)	
d) Yes (please provide details below)	

Further information on the bilateral, regional and/or multilateral agreements on activities likely to significantly affect biodiversity outside your country's jurisdiction.

104. ◇ On Article 14.1(d), has your country put mechanisms in place to prevent or minimize danger or damage originating in your territory to biological diversity in the territory of other Parties or in areas beyond the limits of national jurisdiction?

a) No	X
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place based on current scientific knowledge	

105. ◇ On Article 14.1(e), has your country established national mechanisms for emergency response to activities or events which present a grave and imminent danger to biological diversity?

a) No	
b) No, mechanisms are still in early stages of development	X
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place (please provide details below)	

Further information on national mechanisms for emergency response to the activities or events which present a grave and imminent danger to biodiversity.

In the wake of the Tasman Spirit shipwreck 2003; the Karachi Post trust has made arrangements to deal with emergencies emanating from accidents along the coast line. Arrangements are also under progress to deal with hazardous chemicals under the Bonn convention on hazardous chemicals. The forest departments have in place systems for forest fire control, the Capital Development Authority has elaborate arrangements to control fires in the Margalla Hills National Park.

106. Is your country applying the Guidelines for Incorporating Biodiversity-related Issues into Environment-Impact-Assessment Legislation or Processes and in Strategic Impact Assessment as contained in the annex to decision VI/7 in the context of the implementation of paragraph 1 of Article 14? (decision VI/7)

a) No	
b) No, but application of the guidelines under consideration	
c) Yes, some aspects being applied (please specify below)	X
d) Yes, major aspects being applied (please specify below)	

Further comments on application of the guidelines.

Pakistan Environment Protection Act requires to address biodiversity issues in EIAs in addition to natural resource management legislation.

107. On Article 14 (2), has your country put in place national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity? (decision VI/11)	
a) No	X
b) Yes (please specify the measures)	
Further comments on national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity.	

108. Has your country put in place any measures to prevent damage to biological diversity?	
a) No	
b) No, but some measures are being developed	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures in place to prevent damage to biological diversity.	
Legislation related to natural resource management addresses this issue to some extent.	

109. Is your country cooperating with other Parties to strengthen capacities at the national level for the prevention of damage to biodiversity, establishment and implementation of national legislative regimes, policy and administrative measures on liability and redress? (decision VI/11)	
a) No	X
b) No, but cooperation is under consideration	
c) No, but cooperative programmes are under development	
d) Yes, some cooperative activities being undertaken (please provide details below)	
e) Yes, comprehensive cooperative activities being undertaken (please provide details below)	
Further comments on cooperation with other Parties to strengthen capacities for the prevention of damage to biodiversity.	

Box LIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, most of the COP decisions could not be fully addressed due to manpower and capacity gaps

Article 15 - Access to genetic resources

110. ◇ Has your country endeavored to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms, in accordance with paragraphs 2, 4 and 5 of Article 15?

a) No	X
b) Yes (please provide details below)	

Further information on the efforts taken by your country to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms.

The draft Access and Benefit Sharing Law has been circulated to all stakeholders and the comments are being received. It will take some time to present the Act to the legislature. Prior Informed Consent (PIC), Material Transfer Agreement (MAT) and Mutually Agreed Terms (MTA) shall be part of the legislation. Section 15 (2B) of the Patent Ordinance 2000 provides for disclosure and prior informed consent information in connection with biological material used in inventions for which patent application has been filed.

111. ◇ Has your country taken measures to ensure that any scientific research based on genetic resources provided by other Parties is developed and carried out with the full participation of such Parties, in accordance with Article 15(6)?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to ensure that any scientific research based on genetic resources provided by other Contracting Parties is developed and carried out with the full participation of such Contracting Parties.

Pakistan has ratified the ITPGRA that includes procedures for the exchange of genetic material for research purposes. The legislation in this regard (the Plant Breeders Rights Act) and other legislation are under process. The Bio-safety Rules have been notified that address procedures for the exchange of genetically modified genetic material.

112. ◇ Has your country taken measures to ensure the fair and equitable sharing of the results of research and development and of the benefits arising from the commercial and other use of genetic resources with any Contracting Party providing such resources, in accordance with Article 15(7)?

a) No	x
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive legislation is in place (please provide details below)	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place (please provide details below)	
f) Yes, comprehensive policy and administrative measures are in place (please provide details below)	

Further information on the type of measures taken.

The actions for compliance are at infant stage therefore it is difficult to comment on their impacts and outcomes. Moreover, most of the COP decisions could not be fully addressed due to manpower and capacity gaps Relevant clauses of Pakistan Patent Ordinance 2000 has provisions on disclosure and prior informed consent information for commercial use of Biological Material.

113. ◇ In developing national measures to address access to genetic resources and benefit-sharing, has your country taken into account the multilateral system of access and benefit-sharing set out in the International Treaty on Plant Genetic Resources for Food and Agriculture?

a) No	x
b) Yes (please provide details below)	

Further information on national measures taken which consider the multilateral system of access and benefit-sharing as set out in the International Treaty on Plant Genetic Resources for Food and Agriculture.

During the meetings on the draft ABS Law for Pakistan this point was taken up and it was decided that the ITPGRFA shall be consulted in this regards.

114. Is your country using the Bonn Guidelines when developing and drafting legislative, administrative or policy measures on access and benefit-sharing and/or when negotiating contracts and other arrangements under mutually agreed terms for access and benefit-sharing? (decision VII/19A)

a) No	
b) No, but steps being taken to do so (please provide details below)	x
c) Yes (please provide details below)	

Please provide details and specify successes and constraints in the implementation of the Bonn Guidelines.

Yes, BG are a source of reference while working for the drafting of the legislation on ABS, A Biodiversity Working Group has been constituted in the Ministry of Environment that is working on the draft legislation. A project has been prepared for the implementation of Bonn Guidelines in Pakistan, this is a first step in this direction, and no other work has been done for Bonn Guidelines so far. Efforts have been made by SDPI for capacity building for the implementation of BG in Pakistan; similarly, action has also included parts of BG in its activities under WTO advocacy.

115. Has your country adopted national policies or measures, including legislation, which address the role of intellectual property rights in access and benefit-sharing arrangements (i.e. the issue of disclosure of origin/source/legal provenance of genetic resources in applications for intellectual property rights where the subject matter of the application concerns, or makes use of, genetic resources in its development)?

a) No	
b) No, but potential policies or measures have been identified (please specify below)	X
c) No, but relevant policies or measures are under development (please specify below)	
d) Yes, some policies or measures are in place (please specify below)	
e) Yes, comprehensive policies or measures adopted (please specify below)	

Further information on policies or measures that address the role of IPR in access and benefit-sharing arrangements.

Realizing the importance of this subject the Government of Pakistan has established an autonomous organization: the Pakistan Intellectual Property Organization (IPO- Pakistan). This Organization is administering the approved Patent legislation, and is responsible to provide policy input on the subject to the Government that is making efforts to address these issues.

116. Has your country been involved in capacity-building activities related to access and benefit-sharing?

a) Yes (please provide details below)	X
b) No	

Please provide further information on capacity-building activities (your involvement as donor or recipient, key actors involved, target audience, time period, goals and objectives of the capacity-building activities, main capacity-building areas covered, nature of activities). Please also specify whether these activities took into account the Action Plan on capacity building for access and benefit-sharing adopted at COP VII and available in annex to decision VII/19F.

SDPI (Sustainable Development Policy Institute) and IC (Inter-Cooperation) have implemented some standalone activities / projects for capacity building on ABS in the province of NWFP. Government has taken initiatives recently; however, civil society is working and has done various training and research studies.

Box LIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

As the actions taken/ under consideration are at the initial stage therefore it is premature to comment on their impacts and outcomes.
 However, SDPI and IC have been partially involved in the sensitization of communities and in the protection of their traditional knowledge.
 So far, results of the actions taken have yet to reach the communities, however, efforts are underway to improve the capacities of the communities to realize their rights.
 However, there is consensus that all activities help in achieving Millennium Development Goals.
 Major constraints faced in the implementation of the Articles related to ABS are:
 - lack of capacity to devise programmes of capacity building and limitation of funds.
 -lack of institution linkages and trained professionals

Article 16 - Access to and transfer of technology

117. ◇ On Article 16(1), has your country taken measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment?

a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.

The concept of trophy hunting inspired by the Campfire Project (Zimbabwe) programme has been successfully implemented in Pakistan. This programme has helped in sustainable use of biological diversity by increasing the income of communities.

118. ◇ On Article 16(3), has your country taken measures so that Parties which provide genetic resources are provided access to and transfer of technology which make use of those resources, on mutually agreed terms?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	X
d) Yes, comprehensive legislation is in place	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative arrangements are in place	
g) Not applicable	

119. ◇ On Article 16(4), has your country taken measures so that the private sector facilitates access to joint development and transfer of relevant technology for the benefit of Government institutions and the private sector of developing countries?

a) No	
b) No, but potential measures are under review	X

c) Yes, some policies and measures are in place (please provide details below)	
d) Yes, comprehensive policies and measures are in place (please provide details below)	
e) Not applicable	
Further information on the measures taken.	
<p>The private sector is provided support by the national institutions in developing, patenting and standardizing products; the Pakistan Council of Science and Industrial Research (PCSIR), the HEJ Institute of Chemistry Karachi, the Pakistan Standards Institute, the Pakistan Agricultural Research Council and the Pakistan Quality Control Organization are engaged in such activities.</p>	

Box LV.

<p>Please elaborate below on the implementation of this article specifically focusing on:</p> <ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
<p>As the actions taken/ under consideration are at the initial stage it is premature to comment on their impacts and outcomes</p>

Programme of Work on transfer of technology and technology cooperation

120. Has your country provided financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation? (decision VII/29)	
a) No	x
b) No, but relevant programmes are under development	
c) Yes, some programmes being implemented (please provide details below)	
d) Yes, comprehensive programmes being implemented (please provide details below)	
Further comments on the provision of financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation.	

121. Is your country taking any measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation? (decision VII/29)	
a) No	X
b) No, but some measures being considered	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

below)	
Further comments on the measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation.	

122. Has your country made any technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building? (annex to decision VII/29)	
a) No	X
b) No, but assessments are under way	
c) Yes, basic assessments undertaken (please provide details below)	
d) Yes, thorough assessments undertaken (please provide details below)	
Further comments on technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building.	

123. Has your country made any assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies? (annex to decision VII/29)	
a) No	X
b) No, but assessments are under way	
c) Yes, some assessments undertaken (please provide details below)	
d) Yes, comprehensive assessments undertaken (please provide details below)	
Further comments on the assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies.	

124. Has your country identified and implemented any measures to develop or strengthen appropriate information systems for technology transfer and cooperation, including assessing capacity building needs? (annex to decision VII/29)	
a) No	
b) No, but some programmes are under development	X
c) Yes, some programmes are in place and being implemented (please provide details below)	
d) Yes, comprehensive programmes are being implemented (please provide details below)	
Further comments on measures to develop or strengthen appropriate information systems for technology transfer and cooperation.	
The National Capacity Self Assessment project (UNDP) is being implemented in Pakistan, no other capacity need assessment vis a vis the CBD has been undertaken.	

125. Has your country taken any of the measures specified under Target 3.2 of the programme of work as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention? (annex to decision VII/29)	
a) No	X
b) No, but a few measures being considered	
c) Yes, some measures taken (please specify below)	
d) Yes, many measures taken (please specify below)	
Further comments on the measures taken as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention.	

Box LVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:	
<ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation. 	
As the actions taken/ under consideration are at the initial stage therefore it is premature to comment on their impacts and outcomes	

Article 17 - Exchange of information

126. ◇ On Article 17(1), has your country taken measures to facilitate the exchange of information from publicly available sources with a view to assist with the implementation of the Convention and promote technical and scientific cooperation?	
a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place	
d) Yes, comprehensive measures are in place	

The following question (127) is for DEVELOPED COUNTRIES

127. ◇ On Article 17(1), do these measures take into account the special needs of developing countries and include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on?	
a) No	
b) Yes, but they do not include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	

c) Yes, and they include categories of information listed in Article 17 (2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	
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Box LVII.

<p>Please elaborate below on the implementation of this article and associated decisions specifically focusing on:</p> <ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 18 - Technical and scientific cooperation

128. ◇ On Article 18(1), has your country taken measures to promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity?	
a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures to promote international technical and scientific cooperation.	
Some joint programmes followed in Afghanistan and Gulf countries have been undertaken, Pakistan also actively participates in the regional cooperation programmes like the ECO, SAARC and SACEP where cooperation in the field of conservation and sustainable use of biological diversity is a part. Joint Ministerial Commissions with various countries also include items related to these issues.	

129. ◇ On Article 18(4), has your country encouraged and developed methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention?	
a) No	X
b) No, but relevant methods are under development	
c) Yes, methods are in place	

130. ◇ On Article 18(5), has your country promoted the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention?	
a) No	
b) Yes (please provide some examples below)	X
Examples for the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention.	
The Directorate of Biodiversity cooperates with the SDPI and other institutions in its efforts to make the Bonn Guidelines widely known to the stakeholders; IUCN, WWF and MoE invariably cooperate on	

such issues.

131. Has your country established links to non-governmental organizations, private sector and other institutions holding important databases or undertaking significant work on biological diversity through the CHM? (decision V/14)

a) No	
b) No, but coordination with relevant NGOs, private sector and other institutions under way	X
c) Yes, links established with relevant NGOs, private sector and institutions	

Data are available with different organizations, research institutes, academic and private sector and NGOs. So there is, need to develop a national CHM by MoE

The following question (132) is for DEVELOPED COUNTRIES

132. Has your country further developed the CHM to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation? (decision V/14)

a) No	
b) Yes, by using funding opportunities	
c) Yes, by means of access to, and transfer of technology	
d) Yes, by using research cooperation facilities	
e) Yes, by using repatriation of information	
f) Yes, by using training opportunities	
g) Yes, by using promotion of contacts with relevant institutions, organizations and the private sector	
h) Yes, by using other means (please specify below)	

Further comments on CHM developments to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation.

133. Has your country used CHM to make information available more useful for researchers and decision-makers? (decision V/14)

a) No	
b) No, but relevant initiatives under consideration	X
c) Yes (please provide details below)	

Further comments on development of relevant initiatives.

Efforts are being made to develop the CHM for Pakistan, a contact has been made with the South Asian Cooperation for Environment (SACEP) for the establishment of a regional CHM. Data are available with different organizations, research institutes, academic and private sector and NGOs.

134. Has your country developed, provided and shared services and tools to enhance and facilitate the implementation of the CHM and further improve synergies among biodiversity-related

Conventions? (decision V/14)	
a) No	X
b) Yes (please specify services and tools below)	
Further comments on services and tools to enhance and facilitate the implementation of CHM and further improve synergies among biodiversity-related Conventions.	

Box LVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

As the actions taken/ under consideration are at the initial stage therefore it is premature to comment on their impacts and outcomes

Article 19 - Handling of biotechnology and distribution of its benefits

135. ◇ On Article 19(1), has your country taken measures to provide for the effective participation in biotechnological research activities by those Contracting Parties which provide the genetic resources for such research?

a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place	
d) Yes, comprehensive legislation are in place	
e) Yes, comprehensive statutory policy and subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative measures are in place	

136. ◇ On Article 19(2), has your country taken all practicable measures to promote and advance priority access by Parties, on a fair and equitable basis, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Parties?

a) No	X
b) No, but potential measures are under review	
c) Yes, some measures are in place	
d) Yes, comprehensive measures are in place	

Box LIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The Bio-safety Rules were notified during 2005. Operationalization of the Rules will take some time.

Article 20 – Financial resources

Box LX.

Please describe for each of the following items the quantity of financial resources, both internal and external, that have been utilized, received or provided, as applicable, to implement the Convention on Biological Diversity, on an annual basis, since your country became a Party to the Convention.

a) Budgetary allocations by national and local Governments as well as different sectoral ministries	So far Pakistan has been able to launch GEF funded project amounting to US \$ 25 million under the CBD. These include the Mountain Area Conservation Project, the Pakistan Wetlands Project.
b) Extra-budgetary resources (identified by donor agencies)	Nil
c) Bilateral channels (identified by donor agencies)	Nil
d) Regional channels (identified by donor agencies)	Nil
e) Multilateral channels (identified by donor agencies)	Nil
f) Private sources (identified by donor agencies)	Nil
g) Resources generated through financial instruments, such as charges for use of biodiversity	Amount charged as CITES export permits

Box LXI.

Please describe in detail below any major financing programmes, such as biodiversity trust funds or specific programmes that have been established in your country.

Mountain Areas Conservancy Fund and Protected Areas Management Fund have been established with US\$ 5 million each. Another Wetlands Management Fund is to be established.

137. ◇ On Article 20(1), has your country provided financial support and incentives to those national activities that are intended to achieve the objectives of the Convention?	
a) No	
b) Yes, incentives only (please provide a list of such incentives below)	
c) Yes, financial support only	X
d) Yes, financial support and incentives (please provide details below)	
Further comments on financial support and incentives provided.	
The Ministry of Environment supports activities of the educational institutions for capacity building and awareness activities for the conservation and sustainable use of biodiversity. A mass awareness project and the Pakistan Environmental Programme have been supporting such activities at the national level. The NGOs and other organizations have their own programs for such activities.	

The next question (138) is for DEVELOPED COUNTRIES

138. ◇ On Article 20(2), has your country provided new and additional financial resources to enable developing country Parties to meet the agreed incremental costs to them of implementing measures which fulfill the obligations of the Convention?	
a) No	
b) Yes (please indicate the amount, on an annual basis, of new and additional financial resources your country has provided)	
Further comments on new and additional financial resources provided.	

The next question (139) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

139. ◇ On Article 20(2), has your country received new and additional financial resources to enable it to meet the agreed full incremental costs of implementing measures which fulfill the obligations of the Convention?	
a) No	X
b) Yes	

140. ◇ Has your country established a process to monitor financial support to biodiversity, including support provided by the private sector? (decision V/11)	
a) No	
b) No, but procedures being established	
c) Yes (please provide details below)	X
Further comments on processes to monitor financial support to biodiversity, including support provided by the private sector.	
Financial aid provided by donor agencies is duly monitored for all projects.	

141. ◇ Has your country considered any measures like tax exemptions in national taxation

systems to encourage financial support to biodiversity? (decision V/11)	
a) No	
b) No, but exemptions are under development (please provide details below)	
c) Yes, exemptions are in place (please provide details below)	X
Further comments on tax exemptions for biodiversity-related donations.	
All not for profit, organizations including those working for the promotion of the Convention like WWF-P and IUCN-P are eligible for tax exemptions in Pakistan.	

142. Has your country reviewed national budgets and monetary policies, including the effectiveness of official development assistance allocated to biodiversity, with particular attention paid to positive incentives and their performance as well as perverse incentives and ways and means for their removal or mitigation? (decision VI/16)	
a) No	X
b) No, but review is under way	
c) Yes (please provide results of review below)	
Further comments on review of national budgets and monetary policies, including the effectiveness of official development assistance.	

143. Is your country taking concrete actions to review and further integrate biodiversity considerations in the development and implementation of major international development initiatives, as well as in national sustainable development plans and relevant sectoral policies and plans? (decisions VI/16 and VII/21)	
a) No	
b) No, but review is under way	X
c) Yes, in some initiatives and plans (please provide details below)	
d) Yes, in major initiatives and plans (please provide details below)	
Further comments on review and integration of biodiversity considerations in relevant initiatives, policies and plans.	
The National Sustainable Development Strategy is being developed with the assistance of UNEP that includes review of actions to further integrate biodiversity considerations in the development and implementation of major international development initiatives as well as sustainable development plans and relevant sectoral policies.	

144. Is your country enhancing the integration of biological diversity into the sectoral development and assistance programmes? (decision VII/21)	
a) No	
b) No, but relevant programmes are under development	X
c) Yes, into some sectoral development and assistance programmes (please provide details below)	
d) Yes, into major sectoral development and assistance programmes (please provide details below)	
Further comments on the integration of biodiversity into sectoral development and assistance programmes	

The next question (145) is for DEVELOPED COUNTRIES

145. Please indicate with an "x" in the table below in which area your country has provided financial support to developing countries and/or countries with economies in transition. Please elaborate in the space below if necessary.	
A r e a s	Support provided
a) Undertaking national or regional assessments within the framework of MEA (decision VI/8)	
b) <i>In-situ</i> conservation (decision V/16)	
c) Enhance national capacity to establish and maintain the mechanisms to protect traditional knowledge (decision VI/10)	
d) <i>Ex-situ</i> conservation (decision V/26)	
e) Implementation of the Global Strategy for Plant Conservation (decision VI/9)	
f) Implementation of the Bonn Guidelines (decision VI/24)	
g) Implementation of programme of work on agricultural biodiversity (decision V/5)	
h) Preparation of first report on the State of World's Animal Genetic Resources (decision VI/17)	
i) Support to work of existing regional coordination mechanisms and development of regional and sub regional networks or processes (decision VI/27)	
j) Development of partnerships and other means to provide the necessary support for the implementation of the programme of work on dry and subhumid lands biological diversity (decision VII/2)	
k) Financial support for the operations of the Coordination Mechanism of the Global Taxonomy Initiative (decision VII/9)	
l) Support to the implementation of the Action Plan on Capacity Building as	

contained in the annex to decision VII/19 (decision VII/19)	
m) Support to the implementation of the programme of work on mountain biological diversity (decision VII/27)	
n) Support to the implementation of the programme of work on protected areas (decision VII/28)	
o) Support to the development of national indicators (decision VII/30)	
p) Others (please specify)	
Further information on financial support provided to developing countries and countries with economies in transition.	

The next question (146) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

146. Please indicate with an "x" in the table below in which areas your country has applied for funds from the Global Environment Facility (GEF), from developed countries and/or from other sources. The same area may have more than one source of financial support. Please elaborate in the space below if necessary.

Areas	Applied for funds from		
	GEF	Bilateral	Other
a) Preparation of national biodiversity strategies or action plans	X		
b) National capacity self-assessment for implementation of Convention (decision VI/27)	X		
c) Priority actions to implement the Global Taxonomy Initiative (decision V/9)			<i>none</i>
d) <i>In-situ</i> conservation (decision V/16)	X		<i>EC, World Bank</i>
e) Development of national strategies or action plans to deal with alien species (decision VI/23)			<i>none</i>
f) <i>Ex-situ</i> conservation, establishment and maintenance of <i>Ex-situ</i> conservation facilities (decision V/26)	X		<i>JAICA</i>
g) Projects that promote measures for implementing Article 13 (Education and Public Awareness) (decision VI/19)			<i>none</i>
h) Preparation of national reports (decisions III/9, V/19 and VI/25)	X		
i) Projects for conservation and sustainable use of inland water biological diversity (decision IV/4)	X		
j) Activities for conservation and sustainable use of agricultural biological diversity (decision V/5)			<i>none</i>

k) Implementation of the Cartagena Protocol on Biosafety (decision VI/26)			<i>none</i>
l) Implementation of the Global Taxonomy Initiative			<i>None</i>
m) Implementation of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity			<i>none</i>
n) Others (please specify)			
Further information on application for financial support.			
A project was submitted in response to the EU Call for Proposals 2005 for funding for the implementation of the Bonn Gridlines for Pakistan but the same was not successful. Efforts shall be made again in this regards.			

Box LXII.

<p>Please elaborate below on the implementation of this article and associated decisions specifically focusing on:</p> <ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation. <p>As the actions taken/ under consideration are at the initial stage therefore it is premature to comment on their impacts and outcomes</p>

D. THEMATIC AREAS

147. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the thematic programmes of work of the Convention (marine and coastal biodiversity, agricultural biodiversity, forest biodiversity, inland waters biodiversity, dry and sub-humid lands and mountain biodiversity).

3 = High Challenge

1 = Low Challenge

2 = Medium Challenge

0 = Challenge has been successfully overcome

N/A = Not applicable

Challenges	Programme of Work					
	Agricultural	Forest	Marine and coastal	Inland water ecosystem	Dry and subhumid lands	Mountain
Lack of political will and support	2	3	2	3	3	3
Limited public and stakeholder involvement	2	2	2	3	3	3
Lack of mainstreaming and integration of biodiversity issues into other sectors	3	3	3	3	3	3
Lack of precautionary and proactive measures	3	3	3	3	3	3
Inadequate capacity to act, caused by institutional weakness	3 2	3	3	3	3	3
Lack of transfer of technology and expertise	3 2	3	3	3	3	3
Loss of traditional knowledge	3	3	3	3	3	3
Lack of adequate scientific research capacities to support all the objectives	2	3	3	3	3	3
Lack of accessible knowledge and information	2	3	3	3	3	3

Lack of public education and awareness at all levels	2	2	2	2	2	2
Existing scientific and traditional knowledge not fully utilized	2	3	3	3	3	3
Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented	3	3	3	3	3	3
Lack of financial, human, technical resources	2	3	3	3	3	2
Lack of economic incentive measures	3	3	3	3	3	3
Lack of benefit-sharing	3	3	3	3	3	3
Lack of synergies at national and international levels	3	3	3	3	3	3
Lack of horizontal cooperation among stakeholders	3	3	3	3	3	3
Lack of effective partnerships	3	3	3	3	3	3
Lack of engagement of scientific community	2	2	2	3	2	2
Lack of appropriate policies and laws	2	3	3	3	3	2
Poverty	3	3	3	3	3	3
Population pressure	3	3	3	3	3	3
Unsustainable consumption and production patterns	3	3	3	3	3	3
Lack of capacities for local communities	3	3	3	3	3	3
Lack of knowledge and practice of ecosystem-based approaches to management	3	3	3	3	3	3
Weak law enforcement capacity	3	3	3	2	3	3

Natural disasters and environmental change	2	3	3	3	3	3
Others (please specify)				At the national level, the need is felt to evaluate and conserve the wealth of aquatic biodiversity.		

Inland water ecosystems

148. Has your country incorporated the objectives and relevant activities of the programme of work into the following and implemented them? (decision VII/4)				
Strategies, policies, plans and activities	No	Yes, partially, integrated but not implemented	Yes, fully integrated and implemented	N/A
a) Your biodiversity strategies and action plans		X		
b) Wetland policies and strategies		X		
c) Integrated water resources management and water efficiency plans being developed in line with paragraph 25 of the Plan of Implementation of the World Summit on Sustainable Development	X			
d) Enhanced coordination and cooperation between national actors responsible for inland water ecosystems and biological diversity	X			
Further comments on incorporation of the objectives and activities of the programme of work				
Individual efforts are made by the organizations like WWF, IUCN to prepare a blueprint by identifying the important freshwater species of selected group of fishes, crustaceans, Odonates and mollusks by identifying the biodiversity of the genetic pool. The work regarding enlisting of these forms form the basis of future conservation measures for selected groups of taxa.				

149. Has your country identified priorities for each activity in the programme of work, including timescales, in relation to outcome oriented targets? (decision VII/4)	
a) No	X
b) Outcome oriented targets developed but priority activities not developed	
c) Priority activities developed but not outcome oriented targets	
d) Yes, comprehensive outcome oriented targets and priority activities	

developed	
Further comments on the adoption of outcome oriented targets and priorities for activities, including providing a list of targets (if developed).	

150. Is your country promoting synergies between this programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level? (decision VII/4)	
a) Not applicable (not Party to Ramsar Convention)	
b) No	X
c) No, but potential measures were identified for synergy and joint implementation	
d) Yes, some measures taken for joint implementation (please specify below)	
e) Yes, comprehensive measures taken for joint implementation (please specify below)	
Further comments on the promotion of synergies between the programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level.	
The newly launched Pakistan Wetlands Project is expected to address this issue vigorously	

151. Has your country taken steps to improve national data on: (decision VII/4)			
Issues	Yes	No	No, but development is under way
a) Goods and services provided by inland water ecosystems?			X
b) The uses and related socioeconomic variables of such goods and services?			X
c) Basic hydrological aspects of water supply as they relate to maintaining ecosystem function?			X
d) Species and all taxonomic levels?			X
e) On threats to which inland water ecosystems are subjected?			X
Further comments on the development of data sets, in particular a list of data sets developed in case you have replied "YES" above.			
WWF-Pakistan has prepared a data set on wetlands of Pakistan and even delineated a map indicating Ramsar Sites of Pakistan. Under the ICIMOD remote sensing has been done to delineate the glaciers, snow-covered mountains of North as a water depository, and a pattern has been worked out for their river feeding systems. However the work is patchy and there is a need for consistent development planning. The newly launched Pakistan Wetlands Project is expected to address this issue vigorously			

152. Has your country promoted the application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems? (decision VII/4)	
a) No, the guidelines have not been reviewed	X
b) No, the guidelines have been reviewed and found inappropriate	
c) Yes, the guidelines have been reviewed and application/promotion is pending	
d) Yes, the guidelines promoted and applied	
Further comments on the promotion and application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems.	
No direct survey has been done. However, under the approach of CAMP (Red data book) the IUCN has attempted to follow the guidelines for rapid assessment of inland waters biodiversity especially selected fresh water fish species, population status and habitats to determine the level of threat to endemic species.	

Box LXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

Implementation of Program of work and associated decisions that could have lead to achievement of goals has not met with full success due to lack of streamlining of activities, infrastructure and capacity building through an organized setup under the umbrella of Ministry of Environment. The efforts for the implementation of the convention needed inputs from the scientific community, industrialists, and resource users in a multidimensional approach through participatory role. The results (if any) that appear to be the work leading to conservation of Biodiversity is therefore far from being comprehensive. Hence systematic and sustained efforts are needed first to create awareness for projects in the areas of interest, rationalization of focal points by identification of resource persons, throughout the country and of course through using tools such as conducting regular workshops, seminars and symposia to assess the most current state of the art in the given sub-domains of biodiversity.

Marine and coastal biological diversity

General

153. Do your country's strategies and action plans include the following? Please use an "x" to indicate your response. (decisions II/10 and IV/15)	
a) Developing new marine and coastal protected areas	X
b) Improving the management of existing marine and coastal protected areas	X
c) Building capacity within the country for management of marine and coastal resources, including through educational programmes and targeted research initiatives (if yes, please elaborate on types of	X

initiatives in the box below)	
d) Instituting improved integrated marine and coastal area management (including catchments management) in order to reduce sediment and nutrient loads into the marine environment	X
e) Protection of areas important for reproduction, such as spawning and nursery areas	X
f) Improving sewage and other waste treatment	X
g) Controlling excessive fishing and destructive fishing practices	X
h) Developing a comprehensive oceans policy (if yes, please indicate current stage of development in the box below)	X
i) Incorporation of local and traditional knowledge into management of marine and coastal resources (if yes, please elaborate on types of management arrangements in the box below)	X
j) Others (please specify below)	
k) Not applicable	
Please elaborate on the above activities and list any other priority actions relating to conservation and sustainable use of marine and coastal biodiversity.	
<p>The information on taxonomic assessment of marine fauna and flora is discrete and not readily available. A large number of coastal species had been identified and yet identification of many more species still remains. Although a number of studies have been done on the species diversity of marine organisms on the rocky, muddy and sandy shores, yet the available information is not enough for conservation and management purposes. Pakistan needs to invest on the assessment of marine biodiversity. Any attempt made to compile a database or directory of species of fauna and flora would be very useful for the preservation and conservation of biodiversity. According to the limited reports available, gastropods dominate the rocky shore fauna followed by decapod crustaceans and polychaete worms. As compared to rocky shores, the marine communities of the sandy and muddy beaches have not been studied in detail. A list of the fauna of the beaches of Pakistan is available as a supplement prepared by the Zoological Survey of Pakistan (1973). The earlier studies on marine fauna of Pakistan deal largely with the taxonomy of species and only a few papers are available on the qualitative and quantitative assessment of biodiversity along the coast of Pakistan. Most of these studies are concentrated in areas in and around Karachi. As far as coast of Balochistan is concerned very little information is available.</p> <p>The wetlands of Pakistan along Sindh and Balochistan coasts, harboring mangrove ecosystems, may be ranked as the largest ecosystem with high biodiversity. The wetlands are of great ecological and economic significance. There is substantial information available on the mangroves of Pakistan. Over 48 species of macro fauna were reported from mangrove forests along the coast of Pakistan. The fauna consist of several species of crabs, polychaetes, molluscs etc.</p> <p>A number of workshops have been organized by the Government agencies like Sindh Wildlife Department and other organizations including NGOs on protection and promotion of Mangrove forests on the coastal areas.</p> <p>The mass transport of chemicals within sediments is affected by the physical structure of the sediments (particle size, shape, density, cohesion, bed roughness, porosity, and stratification), the current regime, shear stress of the overlying water on the sediments, bio-irrigation, and bio-turbation. Benthic animals move particles and water vertically, and larger animals move more sediment and pump more water. Animals mix sediments by conveyor processes and they mix pore water by irrigation processes. Benthic animals transport contaminants to the overlying water by mixing sediments vertically and by irrigating their burrows. The marine fauna can also increase the sediment burden of contaminants by deep mixing of pollutant bearing particles.</p> <p>The micro-, meio- and macro-benthos that reside in surface and deeper sediments significantly impact the major ecological processes. Benthic organisms contribute in the regulation of carbon, nitrogen, and sulfur cycling, water column processes, pollutant distribution and fate, secondary production, and transport and stability of sediments. Tubes of animals (e.g. Ampeliscid amphipods)</p>	

and mucous (e.g. motile gastropods) bind particles and stabilize sediments. Thus, destabilizing effects of bioturbation, stabilizing effects of mucous binding, and variable effects of biological sediment redistribution and alteration of bottom roughness influence sediment erosion.

Sediments ranging from gravel to fine mud make the largest habitat in area coverage. Some sediment is uniform in grain size distribution, while others are constituted of mixed particles. On the other hand, sediment also varies in their origin; they may be of biological or geological origins. Sedimentation rate impacts on coastal ecology, circulation and geology (e.g. beach erosion) and elevated nutrients in coastal oceans may lead to algal blooms and associated hypoxia, changes in benthic community makeup, and thus coastal habitat and ecosystem.

Comprehensive policy covering both (marine and fresh water) fisheries is at final stage of completion and hopefully it would be finalized within 2006.

Implementation of Integrated Marine and Coastal Area Management

154. Has your country established and/or strengthened institutional, administrative and legislative arrangements for the development of integrated management of marine and coastal ecosystems?

a) No	
b) Early stages of development	X
c) Advanced stages of development	
d) Arrangements in place (please provide details below)	
e) Not applicable	

Further comments on the current status of implementation of integrated marine and coastal area management.

IUCN Pakistan along with other governmental agencies is making efforts to prepare the Integrated Marine and Coastal Zone Management (ICZM) plan for preparation in Pakistan. As far back in 1994 UNESCO Intergovernmental Oceanographic Commission and National Institute of Oceanography, Karachi, Pakistan organized a Workshop on ICZM jointly. Proceedings were published but the recommendations are yet to be followed. Another workshop on Coastal Zone Management and Environmental Impact Assessment was held at the British Council, Karachi during October 1998. Some management plans for fisheries are in place, Center of Excellence in Marine Biology initiated a short course on Coastal Zone Management in 2004. This course is offered every year and its aim is to train university graduates and also the staff of relevant government and non-government departments with the hope to train manpower in ICZM will be available in future if required. The course will also raise awareness. A draft document 'Coastal Environmental Management Plan' prepared by Economic and Social Commission for Asia and the Pacific, UN is however, available. It is hoped that ICZM shall be taken up in future with a holistic ecosystem approach in the coastal management. The latest initiative of the Ministry of Food Agriculture and Livestock (MINFAL) in preparing the National Fisheries Policy through a wide consultative process with the financial assistance of FAO is expected to have a holistic approach in this sector.

The port authorities like Karachi Port Trust (KPT) and Port Qasim Authority (PQA) have some officers who have acquired skills for ICZM at International Universities under UNCTAD training programs.

The Center of Excellence in Marine Biology, University of Karachi also conducted a participatory workshop to discuss the need for Marine Protected areas in Pakistan. This is one of the means to manage coastal problems (see section on Marine and coastal protected areas below).

The traditional knowledge of the fisher folk community has been incorporated in the Fisheries Policy during the policy-planning phase through consultative process.

155. Has your country implemented ecosystem-based management of marine and coastal resources, for example through integration of coastal management and watershed management, or through integrated multidisciplinary coastal and ocean management?

a) No	X
b) Early stages of development	

c) Advanced stages of development	
d) Arrangements in place (please provide details below)	
e) Not applicable	
Further comments on the current status of application of the ecosystem to management of marine and coastal resources.	

Marine and Coastal Living Resources

156. Has your country identified components of your marine and coastal ecosystems, which are critical for their functioning, as well as key threats to those ecosystems?	
a) No	X
b) Plans for a comprehensive assessment of marine and coastal ecosystems are in place (please provide details below)	
c) A comprehensive assessment is currently in progress	
d) Critical ecosystem components have been identified, and management plans for them are being developed (please provide details below)	X
e) Management plans for important components of marine and coastal ecosystems are in place (please provide details below)	
f) Not applicable	
Further comments on the current status of assessment, monitoring and research relating to marine and coastal ecosystems, as well as key threats to them	
<p>No comprehensive assessment has been made of the marine and coastal ecosystems but the Government Departments and universities have made sporadic efforts. National Institute of Oceanography, Department of Marine Sciences, and Karachi University Centre of Excellence in Marine Biology have conducted Research Studies. Some marine and coastal areas included in Hingol National Park in Balochistan are being studied. Jiwani coastal area shall be studied under a Wetlands Management Programme. The findings of both the studies shall form a part of the Management Plan of the respective Protected Areas.</p> <p>Karachi port Trust (KPT) has identified critical habitats for protection of Biodiversity in Eastern and Western Backwaters of Karachi harbor. Currently KPT is involved in the conservation of three components of ecosystem:</p> <p>Mangroves Mudflats Turtle Nesting Areas (in collaboration with wildlife authorities)</p> <p>A. Mangrove ecosystem</p> <p>Realizing the importance of mangroves and the need to promote their ecological and economical significance, KPT has developed partnership with various organizations. In 1990s KPT worked with IUCN on the reforestation project at Sandpit back waters. In late 1990s, KPT assigned a piece of land to WWF in the middle of mangrove forests at sandspit to establish a Wetland Center. The centre has since been established and functioning well. The main objective of this center is to create awareness about living coastal resources including mangroves. At least 1000 mangrove saplings are planted each year to make up for losses suffered earlier by the mangrove forests in the area.</p> <p>In 2001-2002 KPT embarked upon a project "Restoration of mangroves in China Creek". Further, in 2003-2004 KPT developed a working partnership with local CBOs with financial assistance from UNDP-SGP for the mangrove conservation at China Creek. The project had to be aborted after a year but KPT continued its mangrove restoration plan of China Creek through its resources.</p> <p>In January 2006, the Marine Pollution Control Department of KPT started work on rehabilitation of Mangroves in China Creek. Under this project, an area of about 10 hectares was selected for the direct sowing of <i>Rhizophora mucronata</i>. Three thousand saplings were sown by direct sowing</p>	

methods and 40 % survival has been achieved. Furthermore a nursery of 1000 plants of *Avicennia marina* has been established at marine pollution control department, where mortality has been very low.

Both eastern and western backwaters of Karachi Harbor have sizable mangrove areas (Approximately 1000 Hectares) facing tremendous population pressure. Out of 8 species which were found in the area about a couple of decades back, now there are only 2 species namely *Avicennia marina* and *Rhizophora mucronata*.

B. Mud Flats ecosystem

The wide areas are covered by mudflats in the eastern and western back waters of Karachi harbor. These mudflats are inundated by diurnal tides. The mudflats are important ecosystems with abundance of micro flora and fauna. The mudflats are the feeding rounding grounds not only for fish but also for the migratory birds. According to one study carried by Zoological Survey Department that more than 20000 water birds visit the back waters each year. In view of ecological importance of these mud flats and their associated biodiversity, KPT has established protective banks around these mudflats to save them from the threat of land grabbers.

C. Turtle nesting areas (Through Sindh wildlife Department)

Hawks Bay and Sands Pit beaches are among the major 11 turtle nesting beaches of the world and thus conservation activities here are viewed from a global perspective by the International Community. Two globally threatened species of marine turtle species viz: Green turtle *Chelonia mydas* and Olive Ridley Turtle (*Lepidochelys olivacea*) visit the sandspit and hawk's bay area of Karachi. KPT has allocated a piece of land to Sindh Wildlife Department (SWD) at SandsPit area where they have established hatchlings nursery to protect the baby turtles from the predators. The marine turtle are protected species under the wildlife act of 1992 and the said department is actively involved in their protection and conservation. Regulations have been enforced by KPT on area users and hut owners to provide conditions to facilitate turtle nesting.

It is significant that KPT and port Qasim lie within a diverse, important and critical wetland area and its conservation is the major issue overall as judged on international, regional and national perspective.

The backwaters of KPT were the home ground of the small cetaceans and dugongs. They can be restored through improvement in the backwaters.

Marine Fisheries

Fisheries, a sub-sector of agriculture, is not only important in supply of food to meet the demand for protein but also plays a significant role in the national economy and contributes, on an average, about 1.0 % to the total GDP, this amounts to about 4.0% of the GDP of the agriculture sector. Moreover, it absorbs 1.0% of the country's labor force. About 379,000 fisherfolk and their families are dependent upon the fisheries sector for their livelihood. In addition, another 400,000 people are employed in ancillary industries. Fisheries is the main exploitative sector in the marine and coastal areas.

Shrimp Fisheries

Shrimp fisheries constitute the main bulk of landing and export. It is the backbone of the whole fisheries industry in terms of foreign exchange earnings. Commercial shrimp trawling started in 1958, thereafter, the trawler fleet rapidly expanded with actual in operation of 300 to 450 vessels in 1970, 897 in 1980, and 1,730 in 1990 to 2,343 in 1999. This fleet is almost entirely based at the Karachi Fish Harbor and is considered the land of shrimp catches; the annual total shrimp landing rose steadily and has been fluctuating between 25,000 and 30,000 metric tons since 1980. At least 21 shrimp species have been reported from Pakistan out of which 15 species occur regularly in varying quantities in the commercial landings, but only 5 or 6 species constitute the main bulk of the harvest.

Spawning season:

The relative abundance of mature females in the catch is taken as a parameter of spawning activities at sea. The spawning periods of sale-categories are as under:

<i>Penaeus. merguensis,</i>	Major in April-May, August and lesser extent also in October and January.
<i>P. penicillatus,</i>	October to May.
<i>P. semisulcatus,</i>	January to May.
<i>Metapeneus monoceros,</i>	February to May.
<i>Parapeneopsis stylifera,</i>	June to August and December.

In 1983 the Government imposed a ban on shrimp fishing for the month of June & July of that year. A closed season by itself would not correct the adverse conditions of shrimp stocks due to over-fishing by very large size of fleet. The closure period of June-July, differs from the suggestion of a closure in May-June made by the scientists, but still some dispute regarding the closed season exists.

Fin-fisheries Industry

In the year 2002, out of total production of 614,824 metric tons, 438,361 metric tons of fish was by the marine sector (71.3%), whereas contribution of inland sector was 176,463 metric tons (28.7%). The total production from marine sector includes 294,400 metric tons (67.1%) from the Sindh coast and 129,686 metric tons (29.6%) from Balochistan coast. The contribution from EEZ was only 14,275 metric tons (3.3%).

In order to improve the fishery sector, the Government of Pakistan has established a National Fish Inspection and Quality Assurance Programme for the better utilization of fishery resources to maximize revenues, increase foreign exchange earnings, generate employment opportunities and provide valuable protein food. The basic objective of the programme is to:

- a) reduce post-harvest losses in fish catch
- b) improve the environment, in which fish is handled, processed, stored and distributed
- c) create confidence in consumers by providing and maintaining good quality in fish and fishery products
- d) guarantee a high reputation for fish as food and to promote the fish industry as a whole
- e) increase the fish consumption
- f) contribute to a substantial improvement in national self-reliance and development of fisheries
- g) improve the earnings of fishermen and industry
- h) expand regional and national marketing opportunities and foreign exchange earnings through the improvement and stabilization of quality of fishery products
- i) minimize the losses due to rejection or detention of exported products.

In the first phase about 2,000 fishing vessels that supply fish/shrimp to processing establishment will be upgraded. Better handling practices are being implemented. Infrastructure facilities at Karachi fish harbor are being improved. Karachi Fisheries Harbor Authority has planned to establish three flake-ice making plants (100 m. tons per day capacity) to provide flake ice directly to fishing boats through a proper ice delivery system operating under hygienic conditions so as to avoid contamination during delivery and off loading process. More efficient and hygienic ones are also replacing the traditional trolleys. In order to ensure the good quality fish and shellfish, fishing period is being reduced (not exceeding 10 days). Efforts are being made to ensure that sea food should be handled properly through all channels during transportation.

An insight into the optimum utilization of fisheries resources in the marine and coastal areas is now being developed and plans are being made to rationalize the use of the resource.

157. Is your country undertaking the following activities to implement the Convention's work plan on coral reefs? Please use an "x" to indicate your response.

Activities	Not implemented nor a priority	Not implemented but a priority	Currently implemented	Not applicable
a) Ecological assessment and monitoring of reefs		x		
b) Socio-economic assessment and monitoring of communities and stakeholders		x		
c) Management, particularly through application of integrated coastal management and marine and coastal protected areas in		x		

coral reef environments				
d) Identification and implementation of additional and alternative measures for securing livelihoods of people who directly depend on coral reef services		x		
e) Stakeholder partnerships, community participation programmes and public education campaigns		x		
f) Provision of training and career opportunities for marine taxonomists and ecologists		x		
g) Development of early warning systems of coral bleaching		x		
h) Development of a rapid response capability to document coral bleaching and mortality		x		
i) Restoration and rehabilitation of degraded coral reef habitats		x		
j) Others (please specify below)				
Please elaborate on ongoing activities.				

Marine and Coastal Protected Areas

158. Which of the following statements can best describe the current status of marine and coastal protected areas in your country? Please use an "x" to indicate your response.	
a. Marine and coastal protected areas have been declared and gazette (please indicate below how many)	
b. Management plans for these marine and coastal protected areas have been developed with involvement of all stakeholders	
c. Effective management with enforcement and monitoring has been put in place	
d. A national system or network of marine and coastal protected areas is under development	x
e. A national system or network of marine and coastal protected areas has been put in place	
f. The national system of marine and coastal protected areas includes areas managed for purpose of sustainable use, which may allow extractive activities	

g. The national system of marine and coastal protected areas includes areas which exclude extractive uses	
h. The national system of marine and coastal protected areas is surrounded by sustainable management practices over the wider marine and coastal environment.	
i. Other (please describe below)	
j. Not applicable	
Further comments on the current status of marine and coastal protected areas.	
Only Hingol National Park includes coastal waters. Some coastal areas have been notified through the Gazette as protected areas. IUCN-P is working in collaboration with various governmental and non-governmental organizations to get 10 % of the marine areas declared as protected.	

Mariculture

159. Is your country applying the following techniques aimed at minimizing adverse impacts of mariculture on marine and coastal biodiversity? Please check all that apply.	
Application of environmental impact assessments for mariculture developments	X
Development and application of effective site selection methods in the framework of integrated marine and coastal area management	
Development of effective methods for effluent and waste control	
Development of appropriate genetic resource management plans at the hatchery level	
Development of controlled hatchery and genetically sound reproduction methods in order to avoid seed collection from nature.	
If seed collection from nature cannot be avoided, development of environmentally sound practices for spat collecting operations, including use of selective fishing gear to avoid by-catch	
Use of native species and subspecies in mariculture	
Implementation of effective measures to prevent the inadvertent release of mariculture species and fertile polypoids.	
Use of proper methods of breeding and proper places of releasing in order to protect genetic diversity	
Minimizing the use of antibiotics through better husbandry techniques	
Use of selective methods in commercial fishing to avoid or minimize by-catch	x
Considering traditional knowledge, where applicable, as a source to develop sustainable mariculture techniques	
Not applicable	
Further comments on techniques that aim at minimizing adverse impacts of Mariculture on marine and coastal biodiversity.	
In Pakistan, preliminary experiment through pilot shrimp culture had started by public and private sector. Some faced many difficulties, but commercial viability of the operation has been proven. Still no commercial project has been launched and private sector appears to be hesitant to make investment due to environmental and technical difficulties. The area earmarked for shrimp culture is	

located in the western side of the Indus deltaic creek. It has been observed that the salinity in seawater and in sub-soil areas is increasing. In order to dilute the seawater during period of high evaporation, there is a need to have ample supply of fresh water.

Farming of Mud Crab (*Scylla* sp.) in the coastal earthen ponds was initiated by the Centre of Excellence in Marine Biology on experimental basis from 2002-2005 (Pakistan Science Foundation PSF Funded project).

Conducting Environmental Impact Assessments (EIAs) for all projects is mandatory under the Pakistan Environment Protection Act 1997 (PEPA) there are no specific rules for the marine sector, PEPA 1997 is applicable by default.

Alien Species and Genotypes

160. Has your country put in place mechanisms to control pathways of introduction of alien species in the marine and coastal environment? Please check all that apply and elaborate on types of measures in the space below.

No	x
Mechanisms to control potential invasions from ballast water have been put in place (please provide details below)	
Mechanisms to control potential invasions from hull fouling have been put in place (please provide details below)	
Mechanisms to control potential invasions from aquaculture have been put in place (please provide details below)	
Mechanisms to control potential invasions from accidental releases, such as aquarium releases, have been put in place (please provide details below)	
Not applicable	

Further comments on the current status of activities relating to prevention of introductions of alien species in the marine and coastal environment, as well as any eradication activities.

Invasive or introduced species

A species if it has been introduced by man to a location, area or region where it did not previously occur naturally Ballast water Cargo ships normally use seawater to provide ballast. At source port it fills in the seawater while discharging the cargo. At the destination port it discharges the ballast water. There are thousands of marine species that may be carried in ships' ballast water. This may include anything that is small enough to pass through a ship's ballast water intake ports and pumps. These organisms include bacteria and other microbes, small invertebrates and the eggs, cysts and larvae of various species. The problem is compounded by the fact that virtually all marine species have life cycles that include a planktonic stage or stages. It is fortunate that a vast majority of marine species carried in ballast water do not survive the journey, as the ballasting and deballasting cycle and the environment inside ballast tanks can be quite hostile to organism's survival. Even for those that do survive a voyage and are discharged, the chances of surviving in the new environmental conditions are generally low, particularly where predation by and/or competition from native species further reduces the chances of survival. However, when all factors are favorable, an introduced species may survive to establish a reproductive population in the host environment, it may even become invasive, out-competing native species and multiplying into pest proportions. As a result, this factor imposes problems on the whole ecosystems and the community composition begins to change. It is estimated that at least 7,000 different species are being carried in ships' ballast tanks around the world.

Pakistan needs to start a program to monitor ballast water for possible invasive species. The Karachi Port Trust (KPT) authority Karachi has started such a program and efforts are planned to meet the international obligations in this regard. Ports in Pakistan should have proper receptacles for collecting ballast water as required under "Guidelines for the control and management of ships' ballast water, to minimize the transfer of harmful aquatic organisms and pathogens". These Guidelines were adopted by the IMO Assembly in 1997, by resolution A.868(20) of the GEF/UNDP/IMO Global Ballast

Water Management Programme (GloBallast).

It has been reported by the KPT that among flora, the dinoflagellates, diatoms and Algal spores of the blue green algae may be transported through the Ballast water. Among fauna, the planktonic life forms of Crustaceans copepods, Barnacles crabs etc have the tendency to be transferred from one place to another. According to some studies, Ctenophores and cnidarians are more opportunistic to transfer from one place to another place through ballast water. KPT has requested the Ministry of Science and Technology through Ministry of Ports and Shipping to participate in this program.

Box LXIV.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

As the actions taken/ under consideration are at the initial stage therefore it is premature to comment on their impacts. The action taken so far has been able to block the invasion of species partially. Legislation needs to be developed and strengthened. Legislation does exist to some extent but its strict implementation is required. Lack of coordination among the different stakeholders especially Government departments is the major constraint.

Agricultural biological diversity

161. ◇ Has your country developed national strategies, programmes and plans that ensure the development and successful implementation of policies and actions that lead to the conservation and sustainable use of agro biodiversity components? (decisions III/11 and IV/6)

a) No	
b) No, but strategies, programmes and plans are under development	
c) Yes, some strategies, programmes and plans are in place (please provide details below)	
d) Yes, comprehensive strategies, programmes and plans are in place (please provide details below)	x

Further comments on agro biodiversity components in national strategies, programmes and plans.

Pakistan Agricultural Research Council, being the apex agricultural research and development organization in Pakistan, established Plant Genetic Resources Programme, which has made systematic efforts to collect Pakistan’s crop germ plasm and wild relatives of crops. This institute is not only responsible for planning, conducting, promoting, collection but for introduction, evaluation, documentation, conservation, sustainable management of diverse germless of crop plants and their wild relatives, and also ensuring their continuous availability for breeders for use locally and abroad. Until now, 3841 accessions of various crops and their wild relatives from different parts of Pakistan have been collected. Besides this collection, efforts are being made to increase the collection through acquiring from different research institutes and breeders in the country and from abroad as well.

Present germplasm status in the gene bank in Pakistan is as follows; Wheat 2767, Durum wheat 207, Wheat wild species 116, barley 1274, oats 540, rice 2836, Maize 544, Sorghum 860, Millets 1000, Chickpea 2243, Chickpea wild 90, Lentil 806, Mung bean 639, Mash bean 649, Cowpeas 192, Phaseolus vulgaris 108, Vicia species 172, Vigna acontifolia 66, Lathyrus 14, Ground nut 754, Soybean 133, Sunflower 143, Safflower 362, Brassica species 1002, medicinal and aromatic species 379, fodder and forage 333, fiber crops 357, vegetables 1225 and fruits 1024. Total accessions until 2003 are 20988. Government of Punjab is considering establishing a germless bank. Punjab

Government has also approved establishment of mother and multiplication blocks for mango, citrus, guava and peaches.

The use of such gene pools and their supply resources is expected to continue and is likely to increase as there is need to cope with new ecological adversities/conditions (e.g. reduced water availability, alkalinity, salinity, water logging etc., and new virulent diseases, more tedious pests, fluctuations in climate and changing economic demands. Northern mountain regions are blessed with a variety of wild plants, variety of whose relatives have been domesticated as crops.

These wild plants and their closely related domesticated races occur at different altitudes. They have stood the test of harsh environment through centuries. The wild and domesticated plants together provide a wealth of information about patterns of genetic and phenotypic diversity so dear to biodiversity and conservation strategy. There exists a vast literature on genetic diversity, gene flow in domesticated and wild relatives and inheritance of domestication syndrome. The new molecular analytical techniques such as molecular markers, DNA sequencing etc. when combined with phenotypic and ecological data give birth to huge reservoir of genetic resources, which must be conserved for future generations. A number of land races of different crops, fruits and vegetables are available with the commodity programs in the national research system. Wide spectrum of genetic resources available in Pakistan calls for a concerted effort to conserve these for food security, environmental safety, biodiversity, genetic richness and availability of options for human safety, the species, kinds, varieties and breeds that are domesticated in Pakistan.

LIVESTOCK

The overall genetic resource potential of national herd is high. Buffaloes, Nili-Ravi in Punjab and Kundi in Sindh are kept mainly for milk production. Sahiwal and Red Sindhi cattle are among the best tropical and sub tropical dairy breeds. Other cattle breeds like Bhagnari, Dhanni, Dajal, Rohjan, Tharparker, Cholistani, Kankreg and Lohani are draft, while Tharparker and Kalrej are dual purpose breeds. The small ruminants as goat include Barbari, Chappar (Kohistan, Jabli), Kamori, Sindh Desi, Beetal, Nachi (Beikaneri), Dera din Panah, Teddi, Kaghani, Khurasani, Damni, Gaddi, Lehri, Kajli (Pahari), Baltistani, Bari, Belari, Buchi, Bugi toori, Bujri, Jarakheil, Jattal, Jattan, Kacchan, Kail, Koh-i-Ghizer, Kooti, Kurri, Labri, Lohri, Lehri, Pamiri, Pateri, Potohari, Lappi and Thari. . Sheep breeds include Dumbi, Kachhi, Kooka, Buchi (Bahawalpuri), Kajli, Lohi (Parkanni), Sipli, Thalli, Balkhi, Damani, Hashtnagri, Michni, Waziri, Latti (Salt Range), Kaghani, Balochi, Bibrik, Harnai, Rakhshani, Cholistani and Tirahi. Two breeds of horses that include Balochi and thoroughbred. Camel breeds include Brahvi, Kachhi, Kharani, Lassi, Makrani, PashinRodbari, Gaddi, Ghulmani, Khadar, Maya, Bagri, Marecha, Mahra or Biekaneri, Sindhi Bagri or Booja, Brela or Thalucha, Cambelpuri, Kala chitta, Kharal, Larri, Sakrai and Bactrian a mountain camel in Ghizer Northern Areas of Pakistan, single breed of yak and six crosses of local cow with yak are found that are used both for milk and draft purposes. Livestock breeds are being maintained in provincial livestock institutes in Pakistan. Private farms also maintain some breeds of buffaloes, cattle and horses. Indigenous breeds of donkeys and poultry are also found in Pakistan.

Ministry of Environment, Government of Pakistan in collaboration with IUCN Pakistan and WWF Pakistan and with the consultation of concerned stakeholders has developed Biodiversity Action Plan for Pakistan (BAP) in 1999 that includes the status and threats to agro biodiversity and strategy for the conservation and sustainable use. Biodiversity Action Plan (BAP) is being implemented by the relevant government departments/ agencies, NGOs and civil society organizations

162. ◇ Has your country identified ways and means to address the potential impacts of genetic use restriction technologies on the In-situ and Ex-situ conservation and sustainable use, including food security, of agricultural biological diversity? (decision V/5)

No	
No, but potential measures are under review	
Yes, some measures identified (please provide details below)	
Yes, comprehensive measures identified (please provide details below)	x

Further information on ways and means to address the potential impacts of genetic use restriction technologies on the *In-situ* and *Ex-situ* conservation and sustainable use of agricultural biodiversity.

Government of Pakistan does not allow import of products developed using Genetic Use Restriction Technologies. A comprehensive Plant Breeders Act and Plant Varieties and Farmers Right Act are

under final stages of approval.

The Government of Pakistan has promulgated National Biosafety Rules and Guidelines. These rules are applicable to manufacturing, import and storage of microorganisms and gene technological products of research; whether conducted in laboratories of teaching and research, research and development institutes or private companies involved in the use and applications of genetically modified organisms and products thereof; all work in the field trial of genetically manipulated plants, animals, micro-organisms and cells, and import, export, sale and purchase of living modified organisms, substances or cells or products thereof for commercial purposes. The objective inter alia is to regulate the handling and release of GMOs and GURT material in Pakistan.

Annex to decision V/5 - Programme of work on agricultural biodiversity

Programme element 1 – Assessment	
163. Has your country undertaken specific assessments of components of agricultural biodiversity such as on plant genetic resources, animal genetic resources, pollinators, pest management and nutrient cycling?	
No	
Yes, assessments are in progress (please specify components below)	x
Yes, assessments completed (please specify components and results of assessments below)	
Further comments on specific assessments of components of agricultural biodiversity.	
<p>Genetic Resources Preservation and Research Laboratories (GRP &RL) was established in Pakistan under Pakistan Agriculture Research Council. Systematic efforts to collect crop germless and wild relatives of crop plants started in early 1970s with the collection of rice germless under a project. In 1977, Pakistan Agriculture Research Council initiated another national program on "Collection, Conservation and Evaluation of plant genetic resources in Pakistan. Under this program, a small gene bank for short-term storage and a laboratory was established at National Agricultural Research Centre, Islamabad. In 1993, a decent facility for germless storage and associated research was established at National Agriculture Research Centre, Islamabad under a project titled "Genetic Resource Preservation and Research Laboratory (GRP & RL)". This facility comprises of gene bank for active and base collection and six laboratories namely; exploration and collection, seed conservation, in-vitro conservation, germless, plant introduction and seed health and data management. All laboratories are well equipped with sophisticated equipment and well-trained and highly qualified scientists. After its completion, the project "Technical Cooperation on GRP&RL with JICA" was started in May 1993 that ended in May 1998. Again, in August 2001 JICA funded an after care project on GRP&RL which was completed in August 2003, since its inception it has collected 3841 accessions of various crops and their wild relatives from different parts of the country.</p> <p>A number of projects in integrated pest management (IPM) were undertaken and some others IPM projects are in progress under national and provincial Agricultural Research and Development Institutes.</p> <p>Technologies that help protect the essential niches for the species, which support an increase in predators, pollinators, and judicious and efficient use of agrochemicals that help protect the soil biota e.g. nematodes, fungi, bacteria, insects, worms etc. have been developed. For example, Chrysoperla (42000 cards) and of Trichogramma. (75000 cards) were prepared and released to achieve sustainable biological control in cotton crop. A project on Conservation and management of pollinators for sustainable agriculture through an eco system approach will start soon under UNEP/GEF Pakistan. Successful examples of IPM technologies include crops namely; sugarcane, rice, fruits and vegetables. Field level training of farmers on agro ecosystems analysis was undertaken in cotton following the Farmer's Field School approach on cotton, vegetable crops and rice, and perennial crops like mango, citrus etc. The government of Pakistan has allocated an attractive amount of financial resources for IPM projects for the next ten years plan. This will help conserve other agricultural biodiversity components namely; earthworm, pollinators like honey bee and butterflies, bumblebees, termites and other microorganisms. The Government of Pakistan is committed to rationalize the use of agrochemicals deleterious to components of agro-biodiversity and to adapt the alternative approaches. Policy and strategy for rational use of pesticides has been developed with an objective to</p>	

build up national capacity in pesticide policy analysis and reform and was submitted to the government

Animal genetic resources are being maintained by National and provincial livestock institutions. Semen of various local breeds is collected and preserved for further reproductive purposes through artificial insemination. Breeds of small ruminants viz. a viz., sheep and goat are being maintained at Khairi Murat near Fateh Jang, in the Punjab and Jaba in North West Frontier Province. Breeds of Buffaloes and cattle are being maintained and increased through distributing semen to farmers for artificial insemination at Patoki and Qaderabad, and other livestock farms throughout Pakistan. Likewise, efforts are being made to preserve and increase local animal breeds in the province of Sindh, Balochistan and North Western Frontier Province at various animal research and development institutes.

164. Is your country undertaking assessments of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity referred to in Annex I of the Convention (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance)?

a) No	x
b) Yes, assessments are under way	
c) Yes, some assessments completed (please provide details below)	
d) Yes, comprehensive assessments completed (please provide details below)	

Further comments on assessment of biodiversity components (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance).

The national and provincial agricultural research and development institutes are monitoring most of the components of Agro Biodiversity and respective commodity programmes under National Agricultural Research System. The assessments of the component of agro-biodiversity are regularly monitored and over all changes occurring, are observed and recorded. These changes are occurring due to the adoption and introduction of new improved and high yielding crop varieties. Likewise, the changes that happen due to application of agro-chemicals are observed and consequently the measures to mitigate the damages to the agro-diversity are being adopted, for example, introduction of earth worms, and application of Rhizobium cultures and amendments of gypsum, green manuring and composts and sulfuric acid in nutrient deficient soils.

165. Has your country carried out an assessment of the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining agricultural biodiversity and agro-ecosystem services for food production and food security?

a) No	
b) Yes, assessment is under way	x
c) Yes, assessment completed (please specify where information can be retrieved below)	

Further comments on assessment of the knowledge, innovations and practices of farmers and indigenous and local communities.

Assessments have been made to some extent under Mountain Area Conservancy Project, (MACP), and Environmental Rehabilitation in NWFP and Punjab (ENRPS). The livestock department has published a booklet on the available indigenous genetic resources of livestock in the country. Similarly, the department of agriculture has published data on available resources of plant genetic resources of plant including wild relatives of crops, land races and varieties of crop plants in the country

166. Has your country been monitoring an overall degradation, status quo or restoration/rehabilitation of agricultural biodiversity since 1993 when the Convention entered into

force?	
a) No	
b) Yes, no change found (status quo)	
c) Yes, overall degradation found (please provide details below)	x
d) Yes, overall restoration or rehabilitation observed (please provide details below)	
Further comments on observations.	
Yes, National Agricultural Research System (NARS) has been monitoring an overall degradation, status quo or restoration/ Rehabilitation of agro-biodiversity. The status of components of agro-biodiversity is regularly monitored and overall degradation is being observed and recorded. This is happening because of adoption of new high yielding varieties that are replacing locally adapted varieties and changing nature of cropping systems. Conservation of locally adapted varieties and livestock breeds is being taken up by the national and provincial agricultural and livestock research and development institutions under the NARS.	

Programme element 2 - Adaptive management	
167. Has your country identified management practices, technologies and policies that promote the positive, and mitigate the negative, impacts of agriculture on biodiversity, and enhance productivity and the capacity to sustain livelihoods?	
a) No	
b) No, but potential practices, technologies and policies being identified	
c) Yes, some practices, technologies and policies identified (please provide details below)	x
d) Yes, comprehensive practices, technologies and policies identified (please provide details below)	
Further comments on identified management practices, technologies and policies.	
The negative impacts on biodiversity / agro biodiversity, productivity and sustaining livelihoods are now getting attention; crop management practices are being developed to mitigate the same. Integrated crop and livestock farming is given emphasis by the national and provincial agricultural and development institutions. Indiscriminate use of fertilizers, pesticides and herbicides is being discouraged through evolving integrated pest management techniques and training of farmers in the Farmer Field School System. The efficient and proper use of agro chemicals at farmer schools and through extension services is being disseminated to the farmers through extension services of the provincial and federal governments and by the national and rural support programmes.	

Programme element 3 - Capacity-building	
168. Has your country increased the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainable agricultural biodiversity and to develop strategies and methodologies for In-situ conservation, sustainable use and management of agricultural biological diversity?	
a) No	
b) Yes (please specify area/component and target groups with increased capacity)	x
Further comments on increased capacities of farmers, indigenous and local communities, and their organizations and other stakeholders.	

The National Agricultural Research System, NGOs and national and provincial rural support programs (NRSP) are involved in capacity building of farmers' local communities and other stakeholders. Livestock farming is now being emphasized and promoted by the provincial agricultural and livestock institutions through supporting farmers both technically and financially. Land races, farmers' traditional varieties and livestock breeds have been documented and conserved in national and provincial agricultural research and development institutions.

Ministry of Environment, Government of Pakistan in collaboration with IUCN Pakistan and WWF Pakistan and with the consultation of concerned stakeholders has developed a Biodiversity Action Plan (BAP) for Pakistan in 1999 that includes the status and threats to agro biodiversity and strategy for the conservation and sustainable use. The relevant government departments / agencies, NGOs and civil society organizations are implementing BAP. The Ministry of Environment, Government of Pakistan, has prepared national biodiversity guidelines. These guidelines have been approved in 2005. The objective is to regulate the handling and release of GMOs in Pakistan

National legislation on Biodiversity Act is under wider consultation and being actively considered to be enacted soon.

169. Has your country put in place operational mechanisms for participation by a wide range of stakeholder groups to develop genuine partnerships contributing to the implementation of the programme of work on agricultural biodiversity?

a) No	
b) No, but potential mechanisms being identified	
c) No, but mechanisms are under development	
d) Yes, mechanisms are in place	x

170. Has your country improved the policy environment, including benefit-sharing arrangements and incentive measures, to support local-level management of agricultural biodiversity?

a) No	
b) No, but some measures and arrangements being identified	
c) No, but measures and arrangements are under development	x
d) Yes, measures and arrangements are being implemented (please specify below)	

Further comments on the measures taken to improve the policy environment.

It has now been realized at the planning and policy level in the government to further improve and create awareness about the well-being of the environment in the country. The Government of Pakistan is now allocating more funds for projects that deal with improvement of biodiversity in the country. The Government of Pakistan has recently promulgated Bio-safety rules and regulations. National legislation on Biodiversity Act, and Plant Breeders and Farmers Right Act is under wider consultation and being actively considered to be enacted soon.

Programme element 4 – Mainstreaming

171. Is your country mainstreaming or integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes?

a) No	
b) No, but review is under way	
c) No, but potential frameworks and mechanisms are being identified	
d) Yes, some national plans or strategies mainstreamed and integrated into some sectoral plans and programmes (please provide details below)	x

e) Yes, some national plans or strategies mainstreamed into major sectoral plans and programmes (please provide details below)	
Further comments on mainstreaming and integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes.	
National and provincial planning commissions have emphasized mainstreaming of conservation and sustainable use of agro biodiversity and environmental concerns integrated in planning and development proposals. In planning and execution of any development projects environmental concerns are given due emphasis. Provincial conservation strategies have been developed where more emphasis on specific local issues including conservation of all components of biodiversity is given. Existing sectoral policies and plans pertinent to the conservation and sustainable use of biodiversity are those relating to wildlife, forestry, fisheries, and agro biodiversity. Agricultural policy as reflected in five year plans addresses to issues relevant to CBD, including increasing primary production, reducing land degradation, improving soil management and expanding IPM. In annual plans the influence of National Conservation Strategy, is clearly visible in the 8th five-year plan, which identifies environment as critical issue. Conservation of natural resources and protection of environment are clearly identified as plan objectives. The plan prioritizes the development of a coherent legislation framework, institutional strengthening, and promotion of environmental awareness. Mention is also made of the expansion of the management of protected areas, ex-situ measures for plant conservation and action for the conservation of endangered species.	

172. Is your country supporting the institutional framework and policy and planning mechanisms for the mainstreaming of agricultural biodiversity in agricultural strategies and action plans, and its integration into wider strategies and action plans for biodiversity?	
a) No	
b) Yes, by supporting institutions in undertaking relevant assessments	x
c) Yes, by developing policy and planning guidelines	
d) Yes, by developing training material	
e) Yes, by supporting capacity-building at policy, technical and local levels	
f) Yes, by promoting synergy in the implementation of agreed plans of action and between ongoing assessment and intergovernmental processes.	
Further comments on support for institutional framework and policy and planning mechanisms.	
The Planning Commission of Pakistan discusses, examines and approves policies and Programme of work and allocates funds of project proposals submitted by federal and provincial ministries. Monitoring and assessments are also carried out as an integral part of the planning process.	

173. In the case of centers of origin in your country, is your country promoting activities for the conservation, on farm, In-situ, and Ex-situ, of the variability of genetic resources for food and agriculture, including their wild relatives?	
a) No	
b) Yes (please provide details below)	x
Further comments on of the conservation of the variability of genetic resources for food and agriculture in their center of origin.	
Research and Development Institute under National Agricultural Research System has developed infrastructure and expertise in ex-situ conservation of germless and long-term storage of genetic resources collected from different parts of the country including wild relatives of crop plants. Natural vegetation is being conserved through a system of protected areas. Such vegetation has not yet been fully surveyed for the wild relatives of crops.	

Box LXV.

Please provide information concerning the actions taken by your country to implement the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators.

Technologies developed through integrated pest management (IPM) projects are being promoted through national and provincial agricultural research and development institutes. Indiscriminate and excessive use of agro chemicals is being discouraged and newer technologies e.g. rearing and distribution of predators, use of plant based pesticides (neem base), sowing date modification to escape pest attack, use of pheromones etc., are being disseminated to the farmers through Farmers Field Schools System in cotton belt of Punjab and Sindh. Farmers both men and women are being trained and encouraged to use honey bees as pollinators and produce honey by the provincial and national agricultural and research and development institutions of the country. The Government of Pakistan has allocated liberal funds for the IPM projects for the next ten years. A Policy and strategy for rational use of pesticides in Pakistan has been developed. The framework for action is being vigorously pursued at all levels and various time bound actions are already being implemented at different levels. It is now essential that the environmental and social costs and benefit of pesticide use be considered when future pest control programmes are being developed and evaluated. A project on "Conservation and management of pollinators for sustainable agriculture through an ecosystem approach" is under preparation and will be launched soon.

Box LXVI.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

Integrated farming systems are being emphasized. Because of technologies developed through integrated pest management projects, like use of pheromones, application of pesticide at seed and plant nursery level, zero tillage, conservation of agricultural bio diversity is emphasized. Emphasis on integrated farming systems is given; value addition to agricultural products like milk, citrus fruit, cut flower and other horticultural products is being practiced by the farmers and are further trained and encouraged. These institutions are also conserving land races and native livestock breeds. Implementation of national biodiversity strategies and action plans is under progress.

Forest Biological Diversity

General

174. Has your country incorporated relevant parts of the work programme into your national biodiversity strategies and action plans and national forest programmes?

a) No	
b) Yes, please describe the process used	x
c) Yes, please describe constraints/obstacles encountered in the process	x
d) Yes, please describe lessons learned	x
e) Yes, please describe targets for priority actions in the programme of work	x

Further comments on the incorporation of relevant parts of the work programme into your NBSAP

and forest programmes

After the ratification of CBD, the process of stakeholders' consultations was started in Pakistan to incorporate the programme of work into the plans and programmes of Forest Sector. As a result, commercial aspects of forests subsided and ecological and environmental functions became dominant features of forest policy and management planning. National Conservation Strategy was the first guiding document to stress conservation of forest biodiversity resources and sustainable use of its components. Government of Pakistan had realized that this part of CBD's programme of work could not be effectively implemented without building the capacity of concerned institutions at federal, provincial and local levels. In the second half of 1990's, several programmes and projects were implemented with the main objectives of strengthening institutions including Ministry of Environment and Planning & Development Division, provincial forest departments and non-government community organizations. These institutions are directly concerned with the planning, decision making and monitoring of forest biodiversity resources of Pakistan. Consequent upon these achievements, However, all the three parts of CBD's programme of work i.e. conservation and sustainable use, institutional and social building, and assessment and monitoring have become integral components of all plans, programmes and projects of Forestry Sector.

Despite the fact that these institutions significantly enhanced their respective capacities to implement conservation and sustainability approaches in forest management, yet they are facing constraints. In the first instance, the gaps between demands and supplies of wood are increasing, which leads to overexploitation mainly by forest owners and right holders. Equitable use and benefit sharing is hindered by absence of relevant laws. Incomplete understanding of ecological processes disabled forest departments preparing and implementing scientific management plans. Consequently, conventional management plans have been suspended and green felling from natural forests has been strictly banned which does not conform to the principle of sustainable use.

Incorporation of CBD's work programme

Ministry of Environment as focal point for the CBD, ensures adherence to goals and objectives of CBD's programme of work on forest biological diversity, in all relevant policies, their derivative action plans and programmes. Federal Forestry Board assumed the responsibility of guiding, advising, supervising, evaluating and monitoring policies, action plans, programmes and projects to ensure integrity with national obligations under CBD and to meet the objectives of CBD's programme on forests.

Pakistan's first National Environment Policy 2005 has been promulgated, wherein forests and forest ecosystems are treated as integral components of green environment. The Policy provides guidelines and action plans for the conservation of forest biodiversity in all eco-zones of Pakistan. National Forest Policy has also been prepared after a broad-based stakeholders' consultation and is presently under approval process. The overriding principle of the Forest Policy is to conserve forest ecosystems and ensure sustainable use. The Forest Policy stresses implementation of forest management plans based on ecosystem approach, and protecting relict natural forests. It seeks that commercial forestry should be practiced to the maximum on private woodlands (agro-forestry) and natural forests be protected for environmental services and NTFPs. Commercial harvesting of forest is banned in Pakistan to achieve the prime objective of conserving and replenishing forest biodiversity resources. Under the Millennium Development Goals, Pakistan intends to extend its forest cover from existing 4.8 percent to 6.0 percent by 2015 i.e. more than one million hectares of new land is to be brought under forest cover. This target will be achieved through provincial forestry programmes built on ecosystem approach. Respective action plans, programmes and projects of the provinces are under development, which have a common goal of restoring, conserving and promoting forest biodiversity. Ministry of Environment is sponsoring mega-scale watershed management programmes with the objectives of conserving and building forest biodiversity of catchment areas of Tarbela and Mangla reservoirs. In addition, several projects are under implementation to promote forest biodiversity of irrigated areas of Punjab and Sindh provinces. On farmlands, Government of Pakistan, as a matter of its policy, is promoting native tree species preferably in appropriate proportions to ensure maximum species diversity. Dryland and desert forest diversity is being treated as a crosscutting subject where objectives of CBD and UNCCD integrate. A nation-wide programme on combating desertification and sustainable land management is under preparation with the GEF grant assistance and has forest wherein conservation of dryland forest biodiversity is a major component. Federal government and provincial governments are vigorously implementing programmes to conserve forest biodiversity of protected areas including four national parks namely Hingol (Balochistan), Chitral Gol, Ayubia

(NWFP), Machhiara (Kashmir), and four conservancies in NWFP and Northern Areas.

The National Forestry Program facility (nfp) has been initiated with the support of FAO, this three year program is in its second year of implementation and includes a component of Forestry Vision 2020, this activity will include in depth analysis of the global processes including the program of work on forest biological diversity for implementation in Pakistan.

Box LXVII.

Please indicate what recently applied tools (policy, planning, management, assessment and measurement) and measures, if any, your country is using to implement and assess the programme of work. Please indicate what tools and measures would assist the implementation.

The Ministry of Environment has widely circulated the draft of the Third Report to the provinces, academia and researchers with the aim of creating awareness for implementation. The CBD programme of work on forest biological diversity has also been circulated to the provinces for similar actions and activities to meet the goals. The programme of work has not received due attention so far therefore no specific tools have been devised to assess it. However', the following ongoing/ routine actions may be considered for such an assessment :

1. Detailed surveys and assessment of forest resources were conducted in 2003-04.
2. National Environment Policy 2005 has been promulgated, wherein forest ecosystem is treated as main component of green environment
3. Government of Pakistan has allocated sufficient financial resources to achieve the objectives of programme of work and national targets of forestry sector
4. Wider participation of stakeholders in policy formulation, planning and programming is being done through consultative process; various national and provincial workshops have been conducted to involve stakeholders and particularly communities on forestry issues.
5. Private-public partnership in forestry sector has been adopted as a policy to promote forest biodiversity.

Box LXVIII.

Please indicate to what extent and how your country has involved indigenous and local communities, and respected their rights and interests, in implementing the programme of work.

Involvement of local and indigenous communities, custodian communities and forest dependent communities is not a new concept in Pakistan. Various models of joint forest management and participatory forest management have been implemented during the last decade. Today, most of development plans, programmes and projects necessarily integrate local communities with technical managers (representing public sectors). However, community participation is very limited in regular functions of provincial forest and wildlife departments such as work planning, field operations, financial and physical monitoring. Most of the participatory models work on incentives to communities rather than admittance of rights in benefit sharing. Main constraints in respecting their rights and interests are the governing laws and rules, which seek amendments to ensure maximum participation of indigenous and local communities for effective implementation of programmes of work.

Box LXIX.

Please indicate what efforts your country has made towards capacity building in human and capital resources for the implementation of the programme of work.

Until recently, Ministry of Environment was lacking human and technical resources required to implement CBD's programme of work. Government has recently strengthened the Forestry Wing of the Ministry by providing qualified and experienced staff. Newly created Biodiversity Directorate in the Ministry of Environment is exclusively looking after the technical matters concerning CBD. Though due to the vast subjects covered the staffing is inadequate to deal with all the COP decisions, Global 2010 targets and SBSTTA deliberations.

Ministry of Environment and its attached departments namely Pakistan Forest Institute, National Council for Conservation of Wildlife and Zoological Survey Department have recently enhanced their

human and capital resources. These institutions have started capacity building of provincial forest and wildlife departments through trainings, R&D, national and international consultations, resource surveys, policy guidelines and technical supervision. Government of Pakistan is providing financial support to provincial and district governments to facilitate implementation of their respective programmes on forestry, biodiversity and protected areas. Area Development Programme Balochistan has played an important role in organizing and capacity building of rural communities of Balochistan.

Provincial development programmes and projects have provisions for capacity building of local institutions and communities such as education, vocational skill development, income generation through forest-friendly enterprises, improving rural infrastructure and demonstration. Some forestry-related programmes targeted towards HRD of communities include:

- Environmental Rehabilitation in NWFP and Punjab
- Punjab [Provincial] Forestry Sector Development Projects
- Mountain Areas Conservancy Project (NWFP and Northern Areas)
- Protected Areas Management Project (NWFP, Azad Kashmir and Balochistan)
- Tarbela Watershed Management Project (NWFP)

Box LXX.

Please indicate how your country has collaborated and cooperated (e.g., south-south, north-south, south-north, north-north) with other governments, regional or international organizations in implementing the programme of work. Please also indicate what are the constraints and/or needs identified.

- Pakistan as an active member of UN Forum on Forestry and FAO/Asia Pacific Forestry Commission frequently interacts with Asia Pacific regional countries and the UN member countries on various subjects related to programme of work on forests.
- South Asian Association for Regional Cooperation (SAARC) has regional environment and forestry on its agenda. Pakistan, as SAARC member country, frequently shares experiences and plans of Forestry sector with other member countries with particular reference to implementation of CBD's programme of work.
- Under Economic Cooperation Organization (ECO), Pakistan is interacting with central Asian countries, Turkey, Iran and Afghanistan and endeavoring to adopt a common strategy and implement regional programmes on environment including forestry, and other thematic areas of CBD including alien invasive species.
- Pakistan is cooperating with European Union in implementing EU's programme on environment and forestry in Pakistan. A mega project entitled "Environmental Rehabilitation in NWFP and Punjab" has been recently completed with the EU's assistance which integrated local communities in protection and management of natural forests of upland areas of Pakistan.
- Global Environment Facility (GEF) is financing in its operational programme (OP) areas under three conventions viz: CBD, UNCCD and UNFCCC, particularly in those OPs wherein forestry is treated as a main component. Pakistan is fully cooperating with GEF implementing agencies i.e. the World Bank, UNDP and UNEP.
- Pakistan effectively coordinates with convention secretariats of CBD, UNFCCC and UNCCD and participates in COPs/MOPs, SBSTTAs, and technical groups. Interactions and communications with the host countries of the secretariats and meetings provide opportunities to have dialogues with regional and international counterparts, facilitating implementation of programme of work.
- Official study tours of some forest managers and national park managers to Malaysia, China, South Africa and other regional countries have been conducted which provided excellent opportunities to learn and adopt good practices, leading towards achievement of CBD's objectives. The bilateral partnership between regional counterpart institutions will further strengthened in future.

Expanded programme of work on forest biological diversity

Programme element 1 – Conservation, sustainable use and benefit-sharing

- 175.** Is your country applying the ecosystem approach to the management of all types of forests?

a) No (please provide reasons below)	
b) No, but potential measures being identified (please provide details below)	x
c) Yes (please provide details below)	

Comments on application of the ecosystem approach to management of forests (including effectiveness of actions taken, lessons learned, impact on forest management, constraints, needs, tools, and targets).

Major forest types of Pakistan include dry temperate forests, moist temperate forests, Sub-tropical pine forests, Sub-tropical Scrub forests, Tropical thorn forests, Riverine forests, Irrigated Plantations and Mangrove forests. During the last century, these forests used to be managed under appropriate silvicultural systems such as clear felling, selection felling and shelterwood systems, as specified in working plans of respective forest types. Unfortunately, the working plan prescriptions could not be strictly implemented mainly due to increasing demands for wood resulting in over-felling, and lack of financial resources to replenish forest biomass. Fast rate of exploitation lead the Government to impose ban on all forms of green felling in natural forests and suspension of working plans.

The ban has helped to some extent replenishing natural vegetation over the last decade, but there is great realization that in order to ensure conservation and sustainable use of forests, long term management planning should be revived. Federal and provincial authorities and forest managers have adequately perceived the significance and objectives of ecosystem approach and are building their respective policies, strategies, development plans and programmes on the same approach. For example, as a policy matter, Government of Pakistan is promoting native tree species in natural forests, irrigated plantations and farmlands, instead of exotic and fast growing species. This is a major shift in forest programmes and plans, which ultimately seeks to attain a species composition close to natural ecosystem.

Ecosystem-based forest management is an integral component of different programmes and projects initiated in response to multilateral agreements including UNCCD and CBD. Pakistan is preparing a mega project on sustainable land management wherein ecosystem approach of integrated resource management will be tested and good practices will be replicated in the whole country. Under CBD obligations, Pakistan is implementing Mountain Areas Conservancy Project (MACP) and Protected Areas Management Project (PAMP), both aimed at management of natural forest ecosystems of protected areas with the involvement of indigenous and custodian communities. Independent reviews of these models have proved that community-based management forest biodiversity resources is the most effective means of ensuring conservation, equitable and sustainable use of forests and non timber forest resources.

Despite the fact, the ecosystem approach has become a guiding principle in Pakistan's forestry sector, there are some practical constraints in its complete adoption, which need to be removed. For example, incomplete understanding of local ecological processes and levels of harmonization with human population, increasing demands for wood without alternates, fragmentation of forest lands, and natural calamities such as droughts, floods, earthquakes and landslides.

176. Has your country undertaken measures to reduce the threats to, and mitigate its impacts on forest biodiversity?		
Options		Details
a) Yes	x	Please specify below the major threats identified in relation to each objective of goal 2 and the measures undertaken to address priority actions

Alien invasive species are reportedly not a big threat to forest biodiversity of Pakistan. In irrigated and drylands forest types, *Prosopis juliflora* (mesquite) became invasive due to its extensive vegetative propagation behavior. Provincial forest departments have made tremendous efforts as their regular functions and in different forest development programmes to suppress the wild growth of mesquite. Consequently, the species is now under control and as such not posing a serious threat to forest biodiversity of irrigated and dryland forests.

Similarly, no concerted effort has been made to date on studying and documenting impacts of acidification and eutrophication on forest biodiversity. Unless, actual assessments, measures to combat these threats can not be undertaken. Presently, there is no evidence to prove that acidification and eutrophication are posing any serious threat to any forest types in Pakistan.

Climate change is gradually becoming a serious threat to different forest types of Pakistan. During the last few years, absence of snow on high mountains triggered infestation of bark borer in Blue Pine (*Pinus wallichiana*) forests resulting in drying up of a large number of trees and associated flora. Extended droughts have led to a state of severe soil moisture deficit dying back in economic tree species Shisham (*Dalbergia sissoo*). Atmospheric warming is causing more frequent and extensive forest fires. These natural fires ignite from resin-enriched litter on forest floor hence pose threat to entire ecosystem. Out of season high floods and extended low flows in the Indus river system are resultant of global warming and changing seasonal patterns and as such are main threats to riverine and mangrove forest types. The climate change is also posing a major threat to the ecosystems in Balochistan. Rangelands and Juniper ecosystem in Balochistan were adversely affected by the drought which prevailed from 1998 to 2004.

Government of Pakistan is taking several measures to minimize these drastic impacts of climate change from its own resources. R&D institutions including Pakistan Forest Institute and Punjab Forestry Research Institute Faisalabad have been provided adequate resources to conduct research on disease epidemics and take remedial measures. Provincial governments in their jurisdiction are striving for obtaining due share of irrigation water for plantations to prevent drying up of forests. Indeed, the magnitudes of natural disasters including floods, droughts, land sliding and forest fires are very high and Government can not take all measures to minimize the drastic impacts of climate change on forest ecosystems.

Pakistan is a party to UNFCCC and the Kyoto Protocol and seeks to mitigate the impacts of climate change and to adapt to new climatic scenarios as its obligations. Ministry of Environment, as focal point to UNFCCC and the Kyoto Protocol, has prepared Clean Development Mechanism (CDM) strategy in January 2005. This strategy includes Afforestation / reforestation as a major sector of CDM implementation. It is anticipated that a large number of mitigation and adaptation projects will be launched soon with the investments from developed country parties.

The custodian communities living in the proximity of natural forests and legitimate right holders are bound by law to help Forest Departments in extinguishing forest fires. Unfortunately, the communities lost their interest in protecting forests from fires, primarily due to unresolved conflicts between the State and the communities on the rights and privileges. During the last few years, the concepts of participatory forest management have penetrated very fast in the Forestry Sector. Social Forestry and Joint Forest Management Projects implemented in NWFP and some projects namely EU-assisted Environmental Rehabilitation in NWFP and Punjab Project, GEF-assisted Mountain Areas Conservancy Project (MACP) and Protected Areas Management Project (PAMP) have successfully re-invoked local communities towards forest fire control in collaboration with Forest Departments. Majority of mountain communities have been provided training to combat forest fires.

Fragmentation of forest ecosystems is increasingly becoming a threat in Pakistan. In order to meet the future needs, Government is working on several highways and roads construction projects, some of them are passing through critical ecosystems. Although infrastructure projects contain some provisions to mitigate environmental impacts, yet fragmentation is irreparable damage. An independent assessment of damages of fragmentation is urgently required, so that Government can refine infrastructure projects accordingly. Alienation of land use is not a significant problem in State-owned forests. The communal and private forests, particularly those

b) No	Please provide reasons below
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Further comments on measures to reduce threats to, and mitigate the impacts of threatening processes on forest biodiversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Alien invasive species are a potential threat, and there is a growing need to launch a nation-wide programme on surveying and documenting a complete list of alien invasive species and their potential adverse impacts on forest biodiversity. Mitigation of and adaptation to climate change requires research on scientific aspects such as mitigation potential of different species and ecosystems and standardized methodologies for developing and implementing afforestation and reforestation projects which are to be approved by Executive Board of CDM. The capacities of Pakistani institutions to work on CDM-A/RA projects is presently limited which need to be boosted. Adaptation to extreme climates and natural calamities is a potential area to work for reducing threats to forest ecosystems. Government and other stakeholders including forest owners and right holders have frequently demanded for redefinition of rights and privileges, which are a century-old and are now considered redundant. The process to redefine community rights has to be initiated in conformity with the legislation on access and benefit sharing as obligatory under CBD. The dialogue between stakeholders on new forest laws and rules is still at inception stage and needs to be boosted. Prevention of fragmentation and change in land use requires inter-ministerial and inter-sectoral negotiation so that Government's economic development targets of housing and road sectors are achieved with minimum loss to forest biodiversity. Presently, Forestry and other development sectors are pursuing their stand-alone policies, strategies and plans and there is no mechanism to integrate them towards biodiversity-safe sustainable development. Some other threats not reported before, include non-viability of seed that is a serious threat to relict Juniper and Fir forests. Research and field trials to promote regeneration of these forests have not been successful. There is immediate need for application of innovative technologies to protect and promote relict forests pf Pakistan.

177. Is your country undertaking any measures to protect, recover and restore forest biological diversity?

Options	Details
a) Yes	<p>Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities</p> <ol style="list-style-type: none"> 1. Promulgation of National Forest Policy and under the Millennium Development Goal (MDG), Government of Pakistan has committed to expand forest cover from existing 4.8 % to 6.0 % by 2015. Provinces are accordingly preparing action plans, strategies and projects to achieve the MDG targets. 2. Government of Pakistan has allocated adequate financial resources under Mid-term Development Framework 2005-2010 to achieve national MDG targets. 3. Government is sponsoring many projects of Forestry sector in all provinces targeting rehabilitation of denuded watershed areas, irrigated plantations, scrub forests and Indus deltaic mangrove forests. 4. Conservation of relict forest ecosystems is one of the priorities as envisaged in forest policy, provincial strategies and programmes. <p>Government of Pakistan has achieved its target of designation 12% of total land area of the country as protected areas. Nineteen national parks, 98 wildlife sanctuaries and 97 game reserves have forest biodiversity as their base resource. Scientific management of important national parks including Ayubia, Hingol, Chitral Gol, Machhiara, Margalla, Karakoram and Kirthar national parks has been started through involvement of indigenous communities towards restoration of biodiversity.</p>

b) No		Please provide reasons below
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Further comments on measures to protect, recover and restore forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

The success of efforts made in the past to restore forest biodiversity in Pakistan remained far below anticipated targets. One of the main reasons being that only economic tree species were planted by using conventional techniques and post-planting protection from natural and human-induced damages was inadequate. Some forests, which were protected for example, fencing, have revived their natural species composition to some extent. This exclusionary model can not be replicated in those forests where rights of communities are admitted in law or in privately owned forests. The feasible solutions to these problems lie in giving incentives to forest communities in the form of wood substitutes and generating non-wood sources of income from forests including medicinal plants and eco-tourism. Pre-requisite for this strategy to work is the re-assessment of existing forest biodiversity resources by deviating from conventional approaches of inventorying of economic tree species.

Government has substantially increased financial allocation for Forestry sector and has committed to achieve MDG target of 6% forest cover by the year 2015. This implies that more than 1.0 million hectares of land have to be brought under forest cover. These include those lands which were previously under forest cover but now exist as denuded and blank landscapes as a result of over-felling. As per its policy. Government of Pakistan intends to attain this target by employing ecosystem approach. Unfortunately, capacities of provincial and local forest authorities, forest managers and communities are very limited and need to be enhanced for preparing management plans with the objectives of conservation, sustainable use and benefit sharing.

Relict forests including Chilghoza pine forests, Juniper forests in dry temperate ecological zone and Fir forests in moist temperate ecological zone are facing multi-pronged threats from natural and human causes i.e. non-viability of germless restricting their regeneration and increasing demands of communities for wood. Although some programmes and projects have been implemented and more are under processing, yet objectives of conservation and promotion of these forests have not succeeded to the expectations.

Although a network of protected areas has been established, yet scientific management of all PAs is hampered by lack of human, technical and financial resources. Management planning of three important national parks and four conservancies is presently underway with the GEF assistance. Local communities are being integrated into PA management but the sustainability of this approach necessitates continuous incentives in the form of park based sources of livelihood, alternate sources of income and equitable benefit sharing. During limited period of GEF projects, these objectives can not be achieved, therefore a more secure and sustainable source of funding is required, so that forest biodiversity resources are restored to their potential in the protected areas. Immediate need to attract investments in PA network is the estimation of true economic valuation of PAs and establishment of monitoring system based on objectively verifiable criteria and indicators (C&Is). The processes of economic valuation of forest biodiversity and identification of C&I have been started.

Free ranging ungulates are the major users of rangelands in Balochistan. Stall feeding is resorted to only for a few animals which are either sick or kept at home for fattening. In all other instances , open grazing on rangelands is prevalent. However, in a few areas protected by local communities for slack season use i.e., during winters, only grass cutting is allowed instead of grazing.

178. Is your country undertaking any measures to promote the sustainable use of forest biological diversity?		
Options		Details
a) Yes		Please specify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities

b) No		<p>Please provide reasons below</p> <p>Government has imposed ban on commercial harvesting of natural forests with the prime objective of conserving forests and restoring forest biodiversity.</p> <p>For conserving endemic and threatened species of fauna and flora, Government is strictly implementing CITES in Pakistan.</p> <p>Government of Pakistan in association with NGOs such as IUCN and WWF, has successfully implemented various programmes and projects to promote sustainable use of forest biodiversity. Adequate studies have not been made on the components of forest biological diversity and the levels of sustainable usage.</p>
<p>Further comments on the promotion of the sustainable use of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).</p>		
<p>Pakistan is one of the Low Forest Cover Countries having only 4.8% of its total land area under forest. Only 30% of forests are categorized as productive forests having growth rate more than rate of extraction and which can be exploited for wood. Due to short supplies of wood, rate of deforestation became very high in early nineties. In order to avoid further loss of forests, Government imposed ban on green felling and commercial harvesting of natural forests. Presently, only dead and dried trees are permitted to extraction primarily to meet some demands from domestic sources. Main beneficiaries of these dry felling are local communities who have their rights in forests as admitted in the law.</p>		
<p>Grazing is the second largest use of forest biodiversity. As a result of campaigns by the Government departments and non-governmental organizations, the communities are now inclining towards live-stock rearing on stall feeding instead of free grazing. Economic use of other non-wood commodities is very limited. However, the scope for medicinal plants is growing and Government is promoting research and promotion of medicinal plants in forests. Pharmaceutical and cosmetic industries are showing interest in investing in medicinal plants.</p>		
<p>As an outcome of participatory programmes and projects, forest-dependent communities are organizing themselves for joint actions and are enabled to formulate and implement local development plans with the prime focus on conserving forest biodiversity. Incentives provided to communities are generally project-based and insufficient to compensate for their inputs and services in forest conservation, consequently they start losing interest. A drawback in participatory development planning is the vested interests of some influential groups who own or have major stakes in forests. Forest Departments are gradually transforming from bureaucratic institutions to supervisory bodies of public forests. Although forest managers have started respecting indigenous knowledge of local people, yet there is a persistent mistrust and hesitation for joint working. New laws on equitable sharing of benefits arising from forest biodiversity resources would certainly bring a change in the attitudes of all stakeholders and will induce a sense of responsibility towards sustainable use.</p>		
<p>Present strategies are based on in situ conservation of forest species. Information systems and strategies to promote genetic diversity are at inception stage. Some initiatives are being proposed under GTI. After documentation of genetic variability of different forest types and species, further action plans will be formulated for in situ and ex situ conservation of forest genetic resources.</p>		

179. Is your country undertaking any measures to promote access and benefit-sharing of forest genetic resources?

Options		Details
a) Yes	X	Please specify priority actions in relation to each objective of goal 5 and describe measures undertaken
b) No	X	Please provide reasons below
Further comments on the promotion of access and benefit-sharing of forest genetic resources. (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets)		
Draft ABS law is under process wherein there is no distinction between forest genetic resources and other genetic resources.		

Programme element 2 – Institutional and socio-economic enabling environment		
180. Is your country undertaking any measures to enhance the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing?		
Options		Details
a) Yes		<p>Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities</p> <p>At federal level, Biodiversity Directorate has been established in 2005. Director Biodiversity, supported by Technical Officer (Biodiversity) have assumed the responsibilities of national level planning and programming, capacity building of provinces, NGOs, academic institutions and meeting national obligations under international agreements including CBD.</p> <p>Government is strengthening provincial forest and wildlife departments through financial and technical supports to implement projects for conservation of forest biodiversity.</p> <p>Under different projects being implemented in uplands of Northern Areas, NWFP, Kashmir and Balochistan, participatory analyses of underlying causes of forest biodiversity loss are being conducted. Local level biodiversity conservation plans are being developed with the objectives of suppressing the real causes of biodiversity loss. In Sindh, such participatory analysis has been conducted for mangrove forests under IUCN programme.</p> <p>Government Departments and Non-governmental organizations (IUCN, WWF and others) have launched mass awareness and education campaigns on biodiversity conservation with particular reference to forest biodiversity.</p> <p>x Inter-sectoral policy integration to address and treat forest biodiversity issues is still at preliminary stages. However, policies and programmes of other development sectors including agriculture, energy, communication, housing, water resources, water supply and sanitation, and industries sectors are providing measures for safeguarding environment with particular reference to conservation and development of forests.</p> <p>The process to review and amend the forest and wildlife laws has begun at national and provincial levels. Most of the stakeholders including forest authorities are of the view that Forest Act 1927 and provincial wildlife laws need modifications to enable local communities to play major roles in forest protection and management.</p> <p>Ministry of Environment has conducted thorough evaluation of forest biodiversity resources in relation to land ownership and tenure system, whereby faulty land tenure has been ranked on the top of main causes of forest diversity loss. However, a mechanism to address and resolve land tenure issues is not in place.</p> <p>Research and education programmes on biodiversity at the highest degree levels have been initiated in leading universities of Pakistan.</p> <p>Government Departments, International and national NGOs have made excellent considerable progress in school level education on environmental subjects in particular forest biodiversity.</p>
b) No		Please provide reasons below

Further comments on the enhancement of the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Biodiversity Directorate started functioning in the Ministry of Environment in 2005 and made significant achievements in short time. The Directorate is serving as a main link between CBD and other MAEs, national and provincial governments, academic and R&D institutions, planning and financial institutions, thus creating an enabling environment for achieving the objectives of CBD. As an outcome of this development, the capacities of federal, provincial and local institutions are gradually enhancing to understand, address and treat biodiversity related issues. However, their present concepts and capacities are still limited to some important ecosystems and economic species of fauna and flora.

Government and other stakeholders have realized the need for more rigorous site-specific and eco-regional research programmes so that the significance of all forms of faunal and floral life in forests is proved.

Policy integration at federal and provincial levels is essentially required so that no contradictory actions are taken that threaten the forest biodiversity. In Pakistan, development planning is gradually re-orientating towards sustainable development. For this purpose, Planning Commission of Pakistan has a separate Member (Sustainable Development) who ensures that environmental and forest diversity concerns are adequately incorporated in all projects and programmes of development sectors. Planning Commission approves only those projects which are environmentally safe and have sufficient provisions for rehabilitation. Ministry of Environment, under its National Environmental Action Programme (NEAP) NEAP-Support Programme endeavored to integrate sectoral policies.

Sustainable Development Policy Institute (SDPI) is a non-governmental organization that advises the Government on various policy-related issues including policy integration. Besides, many other national and international NGOs including IUCN, WWF, Himalayan Wildlife Foundation, LEAD-Pakistan, and Mountain & Glacier Protection Organization (MGPO) often provide technical advice and suggest measures to protect forest biodiversity. Despite these achievements, a mechanism to integrate national sectoral policies is not in place. The objectives of these initiatives are to understand the forest ecological processes and find out root causes of biodiversity losses.

UNFCCC-CBD-UNCCD synergistic approach of conserving and building forest biodiversity resources while meeting objectives of CBD, UNCCD and UNFCCC is at conceptual stage, as with other member countries. Several practical problems are yet to be resolved before implementing synergistic programmes of forest biodiversity. For example, there are many uncertainties in carbon sequestration and releasing potentials of different forest ecosystems. This is the main reason why afforestation and reforestation have failed to attract maximum investment under CDM. Furthermore, standard methodologies to validate and verify forestry sector projects have not yet been approved by the Executive Board of CDM. Government of Pakistan, after promulgating CDM strategy, is intending to resolve these problems with international support.

In Pakistan, all development projects and programmes are required, under Pakistan Environment Protection Act 1997, to be preceded by EIA. Pakistan EPA has promulgated the procedure, rules and regulations for conducting and approving EIAs. Probable impacts of developmental activities on forest and biodiversity resources are essentially reported in EIAs which bind the proponents to take necessary measures to minimize the loss. Forest and Wildlife Acts are considered by most of the stakeholders as ineffective to achieve the objectives of biodiversity conservation. A pilot project to formulate a model wildlife law in NWFP has been started with the consultation of all stakeholders.

Another issue concerning forest biodiversity is that two different departments viz: forest department and wildlife department, implement their respective programmes in isolation without any functional coordination between them. Ministry of Environment is trying to bridge the gaps between these departments through financing and technical support in protected areas projects.

Lack of well-conceived, scientific land use planning has led to misuse and mismanagement of lands in the past. Ministry of Environment is preparing National Land Use Plan which will provide help in delineating critical forest ecosystems which should remain intact without alienation of use.

Loose enforcement of forest and wildlife laws lead to a large scale deterioration of forest biodiversity resources of Pakistan in the forms of illegal felling, pilferage, and theft of forest products, mainly wood. The reasons for ineffective protection are numerous; some important to report are (i) lack of staff, equipment, transport and communication facilities, (ii) non-participatory approach in which

local communities have least interest in forest protection, (iii) high market value of wood which attracts wood cutters. Provincial governments are equipping their field teams for better law enforcement with the help of local communities and bringing down market price of wood through imports.

Government of Pakistan is strictly implementing international law i.e. CITES which has protected many forest species which were nearing extinction.

181. Is your country undertaking any measures to address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity?

Options		Details
a) Yes		<p>Please identify priority actions in relation to each objective of Goal 2 and describe measures undertaken to address these priorities</p> <p>Trophy Hunting, sport hunting, harvest of medicinal plants, NTFP and ecotourism have been adopted in Northern Areas and NWFP as a model system for providing direct monetary incentives to the forest dependent communities, as a reward for services rendered by biodiversity. Trophy hunting has also been successfully adopted in Balochistan.</p> <p>x All Forestry and Protected Areas projects have integral provisions for community integration and indirect incentives in the forms of income generating interventions. Valuation of forest biodiversity is now considered a dire need to form a basis for future planning of forestry sector and equitable benefit sharing. However, national capacity in this field is extremely limited. In near future, concerted efforts will be undertaken by the Government on valuation of forest diversity in all ecological zones. Ministry of Environment has stressed that the share of Forestry sector in national GDP should be based on actual values of goods and services instead of traditional method of calculating revenues from sale of wood.</p>
b) No		<p>Please provide reasons below</p>

Further comments on review of socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Poverty of local communities is reported to be intrinsically linked with loss of forest biodiversity resources. They depend on forests for meeting their needs of fuelwood, timber, grass, water and other minor products. In those areas, where income level has improved considerably in the last few decades e.g. in Northern Areas and Kashmir, dependence of communities on forests has significantly decreased. Communities are fast switching to clean fuels and timber alternates and preferring stall-feeding of livestock instead of free grazing. In Northern Areas, Agha Khan Rural Support Program (AKRSP) has brought a revolution in the socio-economic conditions of local communities, which resulted in better management, and conservation of natural resources including forests on private lands. In NWFP and Kashmir, different participatory programmes and projects have provided non-subsidy incentives to local communities with the objective of motivating them towards conservation and development of forest resources. Unlike AKRSP, development projects are short-lived spanning over 3-5 years. Unfortunately, after the completion of participatory projects, interests of communities erode due to stoppage of incentives.

Future system of incentives will be based on economic valuation of goods and services of specific forests in the light of international negotiations under CBD.

182. Is your country undertaking any measures to increase public education, participation and awareness in relation to forest biological diversity?

Options		Details
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a) Yes		<p>Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities</p> <p>Focal point for CBD in Pakistan i.e. Ministry of Environment is effectively disseminating concepts of forest biodiversity, its economic, and social values and national obligations under CBD, to provincial governments and other stakeholders through national workshops/communications.</p> <p>x Ministry of Environment, in technical collaboration with other federal and provincial departments and NGOs like WWF and IUCN are working on different fronts to promote biodiversity awareness education at all levels i.e. from communities through primary to tertiary levels, through holding Biodiversity Day, formal and informal teaching programmes, training workshops and publicity material.</p> <p>Ministry of Environment is building capacity of communities and forest and wildlife staff through study tours to regional countries such as Malaysia to observe good practices to conserve forest biodiversity.</p>
b) No		<p>Please provide reasons below</p>
<p>Further comments on measures to increase public education, participation and awareness in relation to forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).</p>		
<p>Despite handful efforts taken by the Government and NGOs, the message has not reached all corners. Mass awareness and education on forest biodiversity need a long-term national programme targeting maximum population living in all ecological zones. Pre-requisite for awareness and education programme is a need assessment of all segments of society. Pakistan will be soon launching this need assessment exercise with the technical assistance of UNEP.</p>		

Programme element 3 – Knowledge, assessment and monitoring

183. Is your country undertaking any measures to characterize forest ecosystems at various scales in order to improve the assessment of the status and trends of forest biological diversity?

Options		Details
a) Yes		Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities
b) No	x	<p>Please provide reasons below</p> <p>International and regional negotiations on a uniform classification system to-date are in conclusive. In Pakistan, nine major forest types have been identified which can be monitored through satellite remote sensing. These forest types were adopted in latter half of nineteenth century. Presently, no process is underway to review this classification system and to adopt a regional or global system.</p> <p>Monitoring and mapping of forest resources is being done using conventional classification, irrespective of its compatibility with regional or global systems.</p> <p>Pakistan Forest Institute has conducted national level surveys and assessment of forest resources in 2003-04 by using the conventional classification system. On the basis of these surveys, priority areas have yet to be identified for identification of forest biological diversity and restoration.</p>

Further comments on characterization of forest ecosystems at various scales (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Regional initiatives are required to develop and adopt a uniform forest classification system. The forest types to be included in this system should be preferably distinguishable from satellite data for an objective assessment and monitoring. UNEP can foster these initiatives in South Asia.

184. Is your country undertaking any measures to improve knowledge on, and methods for, the assessment of the status and trends of forest biological diversity?

Options		Details
a) Yes	x	<p>Please identify priority actions in relation to each objective of goal 2 and describe measures undertaken to address these priorities</p> <p>Process of developing and applying of standard C&Is has been recently started. A broad-based technical group representing all concerned departments, academia and R&D institutions has been constituted. The technical group at later stage of its work will advise on participating in some regional or international process.</p>
b) No		Please provide reasons below

Further comments on improvement of knowledge on and methods for the assessment of the status and trends (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Government of Pakistan is planning to publish guidelines for identifying, testing and implementing C&Is primarily for protected areas management. The same technical group will identify specific C&Is of forest biodiversity in different ecological zones of Pakistan.

185. Is your country undertaking any measures to improve the understanding of the role of forest biodiversity and ecosystem functioning?

Options		Details
a) Yes		Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
b) No	x	Please provide reasons below Biodiversity research at university level and in R&D institutions is generally aimed at specific species of fauna and flora. Holistic research on relationship between forest biodiversity and ecosystems functioning is restricted by incomplete concepts, lack of literature, absence of methodologies, nonavailability of qualified research supervisors, and shortage of technical and financial resources.
Further comments on the improvement of the understanding of the role of forest biodiversity and ecosystem functioning (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).		

186. Is your country undertaking any measures at national level to improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biodiversity?

Options		Details
a) Yes	x	Please identify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities Pakistan Forest Institute routinely conducts national surveys and collects statistics on status of forests in Pakistan. During the last few years, PFI has archived nationwide spatial databases on various themes related to forestry sector. However the same needs strengthening
b) No		Please provide reasons below
Further comments on the improvement of the infrastructure for data and information management (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).		
Various national institutions including Pakistan Forest Institute (PFI), National Agricultural Research Centre (NARC), and Pakistan Space & Upper Atmosphere Agency (SUPARCO) are now capable of conducting national forest assessment and monitoring by using remote sensing and GIS tools. However, there are certain practical constraints that hinder wider applications of these tools, such as restriction of use and inconsistencies in data.		

Box LXXI.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

The state of awareness to discern between forestry and forest biological diversity is quite low therefore reporting on these issues becomes quite difficult. Awareness on this specific issue is quite low thereby making it even more difficult to comment on the status of implementation and impacts of actions taken.

Biological diversity of dry and sub-humid lands

187. Is your country supporting scientifically, technically and financially, at the national and regional levels, the activities identified in the programme of work? (decisions V/23 and VII/2)

No	
Yes (please provide details below)	x

Further comments on scientific, technical and financial support, at the national and regional levels, to the activities identified in the programme of work.

Pakistan signed UN Convention to Combat Desertification in October, 1994 which was ratified in February, 1997. As agreed by the countries, who are parties to the Convention, a National Action Programme to Combat Desertification (NAP) with the financial support of UNEP and ESCAP has been prepared with the consultation and participation of all stakeholders.

The national reports of the UNCCD implementation highlight the activities undertaken and the action taken to address issues and concerns of desertification / land degradation in general and the specific measures to be adopted under the convention.

188. Has your country integrated actions under the programme of work of dry and sub-humid lands into its national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD? (decisions V/23, VI/4 and VII/2)

No	
Yes (please provide details below)	X

Further comments on actions under the programme of work of dry and sub-humid lands integrated into national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD.

Ministry of Environment prepared National Action Programme (NAP) under the UNCCD (United Nations Convention on Combating Desertification) during 2002-2003. It identifies the factors contributing to the process of desertification in Pakistan and suggests measures and strategy, using an integrated and coordinated bottom-up approach to combat desertification and mitigate the effects of drought. The main programme areas proposed to address desertification, afforestation/agro-forestry in degraded areas; improved crop production in dry lands; improved range/livestock feeding and management; soil and water conservation, water harvesting, increased water use efficiency; rehabilitation and reclamation of saline/sodic soils; improvement of drainage and on-farm management, production and promotion of horticultural crops; and conserving biodiversity. NAP also addresses the affects and mitigation of droughts in Pakistan.. The funding sources for the implementation of NAP activities have been suggested as Public Sector Development Programme, Global Mechanism of UNCCD, National Desertification Control Fund, a small fee/cess on the export of some products, a small conservation fee from hunters, green funds by trading environmental support services and international donor agencies such as UNEP, UNDP, GEF, FAO, and WFP.

At the moment there is no integrated action under the programme of work of dry and sub-humid

lands into its national biodiversity strategies, Biodiversity Action Plan and action plans under the National Action Programme (NAP) of the UNCCD. A strong interaction among the programmes needs to be strengthened.

189. Has your country undertaken measures to ensure synergistic/collaborative implementation of the programme of work between the national UNCCD process and other processes under related environmental conventions? (decisions V/23, VI/4 and VII/2)

No	
Yes, some linkages established (please provide details below)	x
Yes, extensive linkages established (please provide details below)	

Further comments on the measures to ensure the synergistic/collaborative implementation of the programme of work between the national UNCCD processes and other processes under related environmental conventions.

The main programme areas proposed to be addressed by NAP also includes, in addition to others, conservation of biodiversity. The implementation of NAP activities has been suggested under the administrative control of Ministry of Environment, which is also dealing with the issues related to environment and biodiversity. Integration between these two programmes could be better established under this umbrella with a close co-operation of NGOs like WWF, IUCN and Govt. departments like Pakistan Museum of Natural History.

Programme Part A: Assessment

190. Has your country assessed and analyzed information on the state of dryland biological diversity and the pressures on it, disseminated existing knowledge and best practices, and filled knowledge gaps in order to determine adequate activities? (Decision V/23, Part A: Assessment, Operational objective, activities 1 to 6)

a) No	
b) No, but assessment is ongoing	
c) Yes, some assessments undertaken (please provide details below)	x
d) Yes, comprehensive assessment undertaken (please provide details below)	

Further comments on the relevant information on assessments of the status and trends and dissemination of existing knowledge and best practices.

Pakistan has initiated various programmes to assess and analyze the information on the state of biological diversity and pressures on it, dissemination of existing knowledge and best practices, and filling of knowledge gaps in order to determine adequate activities. These are:

- Pakistan Protected Areas Management Project This project has helped to conserve nationally and globally important habitats and species in arid and dry areas of Hingol National Park in Balochistan, in addition to other areas. The project will seek to conserve natural habitats and arrest the decline of species; improve the capacity of government agencies and community institutions; improve collection of bio-diversity data; and support environmental awareness campaigns for the public, school children and tourists.
- Management Plans for Kirthar National Park and Chiltan Hazarganji National Park falling in arid and semi arid regions of Pakistan shall also address the biodiversity issues.
- Community based conservation of Straight-horned markhor (*Capra falconeri megaceros*), Afghan Urial (*Ovis orientalis cycloceros*) and associated biodiversity in Takatu Hills, Quetta-Pishin Districts
This project aims at species conservation, control on poaching, improvement of natural resources for alternative livelihood, capacity building of community/ partners.
- Sustainable Management of Chilghoza Forest Ecosystem in Suleiman Mountain Range
The Suleiman Mountain Range is an important area of biodiversity having globally significant

and endangered biodiversity of Chilghoza (*Pinus gerardiana*) forests ecosystem. This project will have substantial global benefits through the protection and conservation of Suleiman Mountain's biodiversity and will help in the development of model community-based conservation strategies and approaches that can be transferred and replicated in other areas of Pakistan having somewhat similar socio-cultural relations (not only in Pakistan but also in Afghanistan).

- Conservation of Habitats and Species of Global Significance in Arid and Semi-Arid Ecosystems in Balochistan (Preparatory Phase Budget US\$21,000):
The objectives of the project are to maintain or increase biological diversity and ecosystem productivity. Both Convention on Biological Diversity (CBD) and Biodiversity Action Plan (BAP) of Pakistan place great stress on encouraging and protecting the biological diversity through sustainable use and recognize the need to support the local communities in this endeavor.
- A National Programme on Land Degradation has been initiated (Currently PDF-B under the National Environmental Action Plan (NEAP)) This will not only study the existing condition of land degradation but also identify the gaps at the policy level. It would help develop a national database on land degradation and its impact on the poor communities. It would also result in implementation of Sustainable land management activities that would help improve the current situation of land degradation.
- Pakistan Wetlands Project a more recent initiative of Ministry of Environment in collaboration with WWF-Pakistan and other partners aims at improving the wetland scenario in the country that ultimately is going to add to improved condition on drylands, their biodiversity, and livelihood of the people.
- Ministry of Environment is implementing a GEF-UNDP funded PDF-B Project for designing and implementing a National Program to combat land degradation and desertification in Pakistan.

The projects mentioned here have components on assessment and monitoring of land resources/biodiversity.

The Government of Pakistan is a party to a number of international treaties/ conventions related to nature conservation like CITES, CMS, Ramsar Convention, UNFCCC, and WHC.

A mega collaborative project, Mountain Areas Conservancy Project (MACP) is the best example of collaborative implementation of the programme. The project is funded by the Global Environment Facility (GEF), the United Nations Development Program, and the Government of Pakistan (GoP); The project is based on a successful 4 year Pilot Phase funded through the GEF Pre-Investment Facility (PRIF) namely "Maintaining Biodiversity in Pakistan with Rural Community Development". The Ministry of Environment is the executing agency. IUCN -The World Conservation Union Pakistan is implementing the project in close collaboration with the Department of Forestry, Wildlife and Fisheries in the North West Frontier Province (NWFP) and the Department of Forests, Parks and Wildlife in Northern Areas (NA). Worldwide Fund for Nature Pakistan (WWF-P), the Aga Khan Rural Support Program (AKRSP), and the Himalayan Wildlife Foundation (HWF) are the key civil society organizations collaborating in implementation.

Programme Part B: Targeted Actions

191. Has your country taken measures to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences? (part B of annex I of decision V/23, activities 7 to 9)

a) No	
b) Yes, some measures taken (please provide details below)	x
c) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences.

The CBD recognizes the need for countries to use their indigenous biological resources for socio-economic development. In fact, key sectors of the economy of Pakistan, such as agriculture, fisheries and forestry are dependent on the use of biological resources. While recognizing the need to use resources, the CBD requires parties to ensure that use does not deplete the country's biodiversity. The sustainable use of the components of biodiversity is specifically established in Article 10 of the Convention which inter alia requires parties to integrate consideration of the conservation and sustainable use of biological resources into national decision-making and to adopt measures that would avoid or minimize adverse impacts on biological diversity.

One of the objectives of the Convention is the sustainable use of biodiversity figures prominently in Articles other than Article 10. For example, in the Article on in-situ conservation (Article 8), such conservation is never meant to be carried out by excluding use of the resource. Article 8(c) states: regulate or manage biological resources important for the conservation of biodiversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.

A new approach is being practiced in which local people are no longer considered to be the problem but rather, part of the solution. In recent years, a number of innovative projects the UNDP/GEF-funded project, Maintaining Biodiversity with Rural Community Development have tested this approach in Pakistan. The results were encouraging and demonstrated that local communities could be effective custodians and managers of biological resources.

Following factors that can help promote sustainable use at the species and ecosystem levels have been proposed in BAP:

Social/policy factors:

- defined «ownership» to land and resources
- effective information exchange between users, decision-makers and the public.

Economic factors:

- adequate income/incentives for communities to sustain conservation of the resource;
- Re investment of income earned into conservation.

Biological factors:

- establishing the biological basis for use i.e. status, trend and biological requirements;
- setting objectives for the size of the target population

Management inputs:

- training; and
- monitoring.

To achieve these targets various actions have been recommended in BAP. Following actions that can help incentive measures at the species and ecosystem levels have been proposed in BAP:

Introduce a system of direct incentives that could include:

- the provision of subsidies to encourage farmers to retain local cultivars and crop varieties, and to adopt practices such as integrated pest management, agro-forestry and multi-species cropping;
- the provision of subsidies to encourage land owners to manage their properties in ways that are sensitive to biodiversity, or to refrain from changing existing land-uses;
- the provision of grants for the protection of threatened species or habitats, and the restoration of degraded lands;
- the development of programmes to ensure that local communities receive direct benefits from biodiversity, e.g. through sustainable use activities;
- incentives to encourage ex-situ propagation/ breeding programmes for traded species of wild plants and animals, in order to reduce the drain on wild populations; and
- the provision of incentives for staff (particularly field staff) working in institutions dealing with biodiversity. Possibilities include: upgrading employees to regular functional staff; the provision of extra training opportunities; and public recognition for outstanding service.

Introduce a system of indirect incentives to promote the conservation and sustainable utilization of biodiversity that could include:

- fiscal incentive measures such as tax exemptions or deductions for the conservation of particular habitats or species; tax reductions for the import of equipment used in conservation programmes; and tax deductions for donations to conservation NGOs;
- service-oriented incentives, designed to link community development programmes with the conservation of biodiversity. For example communities living adjacent to protected areas could be accorded priority for public education programmes and technical assistance in agriculture, forestry and other fields.
- social incentive measures designed to improve the quality of life. These include measures such as the clarification of land tenure and the creation of new institutions to manage biodiversity.

Introduce a system of disincentives to discourage unsustainable utilization and practices which deplete biodiversity. These could include:

- increasing the size of fines for the violation of conservation laws;
- revising the tax schedule to penalize undesirable land-use practices;
- using fiscal disincentives e.g. pollution and effluent charges, for activities which are damaging to biodiversity. This could also include the use of a «polluter pays» policy, requiring developers to take measures to mitigate the environmental damage caused by their activities; and
- promoting and strengthening traditional customs and practices which serve as disincentives to unsustainable use.

To meet the above said actions following steps have been initiated in Pakistan.

- Employment for local community, more than 80% share for local community
- Incentives to local community through Trophy hunting, sport hunting, eco-tourism activities, medicinal plants propagation, Decision making through communities
- Rights of local people conserved as free grazing, grass cutting in specified areas, specified trees at concession and zamindara rates, removal of dead and fallen trees and removal of minor forest produce.
- Notification of community controlled conservation areas
- Basic services like infrastructure development, education, health, irrigation channels, agriculture, veterinary services have been provided through various projects and programmes

192. Has your country taken measures to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work?

a) No	
b) Yes, some measures taken (please provide details below)	X
c) Yes, comprehensive measures taken (please provide details below)	
d) Yes, all identified capacity needs met (please provide details below)	

Further comments on measures taken to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work.

Pakistan has developed institutional facilities for exclusive or partly research and development of Arid and semi arid regions of the country. Some of these institutions are:

- Pakistan Forest Institute, Pashawar
- Zoological Survey Department
- Pakistan Museum of Natural History, Islamabad
- National Agriculture Research Centre
- University of Arid Agriculture, Rawalpindi
- University of Agriculture, Faisalabad
- Arid zone Research Centre, Quetta
- Cholistan Institute of Desert Studies
- Sindh Arid Zone Development Authority
- Cholistan Development Authority
- Arid Zone Research Institute for Barani Areas Development (ABAD)
- Provincial Forest and Wildlife Departments

In addition to it, article 12 of CBD focuses on the need for research and training for capacity building for developing countries. The following steps therein have been made:

- i) Research on different biodiversity disciplines in research institutions and Universities.
- ii) Funding of research through government development plans, Ministries and NGOs etc.
- iii) MSc classes on environment stated in different universities.

Article 12 of the CBD focuses on the need for research and training, recognizing the special needs of

developing countries in this regard.

The main areas identified while formulating BAP covering article 12 of CBD for Pakistan includes:

a- Research

Identification, distribution and status of Pakistan's biodiversity: location of biological «hotspots» and other sites of conservation importance; the composition, distribution, and status of non-woody and non-vascular flora, invertebrate fauna, micro-organisms, marine fauna (particularly marine mammals) and flora; Ecology and ecosystem functions: the biology and ecology of threatened species; the impact of introduced exotic species; ecosystem dynamics of wetlands, forests and mountains;

Human/natural resource interactions: status, abundance and population trends of traded species (this information is required for active participation in CITES); the use of forest resources other than timber and fuel wood; traditional knowledge and the use of

The benefits and risks associated with the application of modern biotechnology; the costs and benefits of conserving natural resources (economic valuation studies); ex-situ breeding/cultivation of economically important species; scale of the incidental catch of marine turtles by the shrimp fishery; the impact of Pakistan's international debt on biodiversity and natural resource utilization.

be free of charge for the country of origin.

b) Training/Strengthen human capacity in biodiversity conservation and management

Assess current capacity and the biodiversity- related training needs of natural resource managers, conservation professionals and other concerned staff, and the extent to which these are currently being fulfilled. Design and implement in-service training courses to address immediate gaps and priority requirements, Enhance existing training programmes in natural resource management, through the provision of funding, staff and equipment. Explore opportunities for «twinning arrangements» with institutions in other countries √ universities, botanical gardens, national park authorities and so on, Develop at least one university degree programme in biodiversity and conservation biology particularly as it relates to community-based management of natural resources. Promote the integration of biodiversity themes into other, tertiary-level courses and programmes, create at least one vocational diploma- level course to train protected area managers. Promote, through grants and other means, post-graduate specialization in biodiversity related fields, e.g. taxonomy. Strengthen the capabilities of NGOs and community institutions to play an effective role in the conservation and management of biodiversity; in particular, initiate training programmes with «umbrella NGOs» that have large networks of community based organizations and Village Organizations. Integrate biodiversity concerns into the training curricula of rural development and extension staff, particularly in the fields of agriculture, forestry and fisheries.

Box LXXII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

Mountain Biodiversity

Programme Element 1. Direct actions for conservation, sustainable use and benefit sharing

193. Has your country taken any measures to prevent and mitigate the negative impacts of key threats to mountain biodiversity?

a) No	
b) No, but relevant measures are being considered	

c) Yes, some measures taken (please provide details below)	
d) Yes, many measures taken (please provide details below)	x
Further comments on the measures taken to prevent and mitigate the negative impacts of key threats to mountain biodiversity	
<p>Mountain Areas Conservancy project (MACP) Aims at mitigating threats to biological diversity in the Western Himalayan, Karakoram and Hindukush ranges of northern Pakistan. The focus is on empowering local communities to manage ecosystems and wild resources, making them accountable for the quality of their stewardship.</p> <p>Initiation of Protected Areas Management Project (PAMP) has been launched which will help conserve nationally and globally important habitats and species in Pakistan's two of the three Protected Areas of Machiara in Azad Jammu and Kashmir and Chitral Gol in the North-West Frontier Province located in the mountainous regions of Pakistan. It will specifically benefit the poor and women of the custodian communities, who make the most intensive use of natural resources due to lack of other opportunities, by providing skills training and micro-credit. The project will seek to conserve natural habitats and arrest the decline of species; improve the capacity of government agencies and community institutions; improve collection of bio-diversity data; and support environmental awareness campaigns for the public, schoolchildren and tourists.</p> <p>The Governments of NWFP, Azad Jammu and Kashmir and Northern Areas and NGOs like WWF-P and IUCN have been running projects to prevent and mitigate the negative impacts of key threats to mountain biodiversity.</p>	

194. Has your country taken any measures to protect, recover and restore mountain biodiversity?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	
d) Yes, many measures taken (please provide details below)	x
Further comments on the measures taken to protect, recover and restore mountain biodiversity	
<p>Many projects have been implemented /initiated. Despite the above said two projects, the following projects have been initiated in mountainous areas of Pakistan:</p> <ul style="list-style-type: none"> i) Malakand Biodiversity Conservation Project ii) Upper Siran Biodiversity Conservation Project iii) Deosai Brown Bear Project iv) Sustainable resource use & biodiversity conservation at key sites in NAs of Pakistan v) Integrated conservation & development support for Karambar Valley vi) Conservation of Snow Leopard in Pakistan vii) Palas conservation and development project viii) Conservation of key wildlife species and their habitat in the Northern Areas ix) Northern Areas Conservation Project (NACP). x) Conservation of migratory birds in Chitral, NWFP xi) Pakistan Wetland project 	

195. Has your country taken any measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	x
d) Yes, many measures taken (please provide details below)	

Further comments on the measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems

Through the Mountain Areas Conservation Project the objectives of promoting sustainable use of mountain biological resources and maintaining genetic diversity in mountain areas has been achieved as like:

Empowering, organizing and enhancing the capacity of local communities to conserve biodiversity (village, valley, and district level conservation committees were organized and took all key decisions at local levels);

Enhancing the value of components of biodiversity for the local people (as a conservation incentive) by promoting sustainable use; and

Creating a policy, legal, and financial framework that supports community-based conservation.

A hunting ban and a positive change in perception towards livestock predators;

Implementation of grazing management practices, rather than free grazing of livestock;

The conservation of medicinal and aromatic plants through in- and ex-situ conservation practices; and Development of joint forest management plans and activities, prioritizing conservation as a major source of livelihood. PAMP and Wetlands project have also been started to promote the sustainable use of mountain biological resources and maintain genetic diversity in mountain ecosystems.

196. Has your country taken any measures for sharing the benefits arising from the utilization of mountain genetic resources, including preservation and maintenance of traditional knowledge?

a) No	
b) No, but some measures are being considered	X
c) Yes, some measures taken (please provide details below)	
d) Yes, many measures taken (please provide details below)	

Further comments on the measures for sharing the benefits arising from the utilization of mountain genetic resources

Access and Benefit sharing is in its process of consultation.

Programme Element 2. Means of implementation for conservation, sustainable use and benefit sharing

197. Has your country developed any legal, policy and institutional framework for conservation and sustainable use of mountain biodiversity and for implementing this programme of work?

a) No	
b) No, but relevant frameworks are being developed	
c) Yes, some frameworks are in place (please provide details below)	
d) Yes, comprehensive frameworks are in place (please provide details below)	x

Further comments on the legal, policy and institutional frameworks for conservation and sustainable use of mountain biodiversity and for implementing the programme of work on mountain biodiversity.

The following steps have been taken for the conservation and sustainable use of mountain biodiversity and for implementing the programme of work on mountain biodiversity:

- 1) Establishment of Federal biodiversity steering committee
- 2) Constitution of provincial biodiversity steering committee
- 3) Reconstitution of Biodiversity Working group

- 4) Establishment of Biodiversity secretariat
 - 5) Adoption of BAP by the Govt. of Pakistan
 - 6) Drafting and notification of biodiversity related laws
 - 7) Rupees 20 billion for the next five years have been allocated by the Govt. of Pakistan.
 - 8) Biodiversity conservation has been given due recognition in the conservation strategies
 - 9) Regulations for conducting IEE/EIA have been notified
- Conservation priorities have been identified by different organizations under their work programmes

198. Has your country been involved in regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity?

a) No	
b) No, but some cooperation frameworks are being considered	X
c)	
d) Yes (please provide details below)	

Further information on the regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity

Pakistan shares valuable biological resources with the neighboring countries from all of its borders. In the North, Pakistan shares the rich biological resources with neighboring countries like China, and Tajikistan.. Focal point for CBD participated in a communication processes in September 2006 in Urumqi, China that was attended by representatives from China, Tajikistan, Afghanistan and representatives from Wildlife Conservation Society, USA (WCS), UNEP, IUCN and WWF. to consider the establishment of a Transboundary Peace Park in the Pamir Region to preserve the biodiversity and ensure protection of Marco polo Sheep the flagship species in the Pamirs that shares its habitat across borders in all the four countries. Following potential activities were considered in this regard:

- 1 Establishment of Conservation forum for formal interaction between protected areas for their management
- 2 Constitution of working groups for transboundary cooperation and eco-tourism development.
- 3 Scientific cooperation on species survey and research
- 4 Exchanges of experts for enhancing the capacity
- 5 Development of Action Plan addressing both shared and local concerns

Pakistan is considering further developments on the outcomes of the meeting held in China for establishment of Peace park.

Programme Element 3. Supporting actions for conservation, sustainable use and benefit sharing

199. Has your country taken any measures for identification, monitoring and assessment of mountain biological diversity?

a) No	
b) No, but relevant programmes are under development	X
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for identification, monitoring and assessment of mountain biodiversity

Many projects have been initiated in public sector as well as in Private sector (NGOs) in different ar-

reas of Pakistan. In addition to it, numerous projects initiated by Pakistan Museum of Natural History, Islamabad initiated on Butterflies, Insects, Fishes, Reptiles, Mammals is a great contribution for identification, monitoring, and assessment of Biological diversity of the mountain areas.

Following four international projects have contributed lot for exploring the Biodiversity of the mountain regions.

The biology of butterflies of Northern Pakistan: Gilgit to Khungerab (a joint ongoing research project since 1994 with Oxford University Museum, funded by NSF, USA)

Zoogeographical studies of the flies of medicinal importance of Pakistan. (a three years collaborative research project with Japanese entomologists, completed in 1990)

Small Mammals of Pakistan (ongoing project with Florida Museum of Natural History, USA since 1994)

To collect and publish the book 'Herpetology of Pakistan (A three years Joint project with Florida Museum of Natural History, Completed in 1993)

Government Departments, NGOs, and Academia have conducted many projects undertaking identification, monitoring and assessment of mountain biodiversity

200. Has your country taken any measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity?

a) No	
b) No, but relevant programmes are under development	
c) Yes, some measures are in place (please provide details below)	x
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity

Research on different biodiversity disciplines in research institutions and Universities has been started. The following actions are worth mentioning:

- i) Funding of research by Government of Pakistan and NGOs
- ii) M.Sc. classes on environment started in different universities.
- iii) Consideration of a PhD programme at PMNH
- iv) Websites on different biodiversity aspects launched at PMNH, IUCN and WWF
- v) Meetings, Workshops, Symposia are being regularly held to promote different aspects of biodiversity
- vi) Environmental programmes have been included in curricula of schools
- vii) Books and Field guides on flora and fauna are being developed
- viii) Charts, posters, brochures on biodiversity conservation being developed
- ix) Journalists training, radio and TV talks and panel discussions being organized
- x) Seminars, symposia and Workshops have been organized by M/O Environment, PMNH, IUCN, WWF and other organizations

201. Has your country taken any measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems?

a) No	
b) No, but relevant programmes are under development	X
c) Yes, some measures are in place (please provide details below)	

d) Yes, comprehensive measures are in place (please provide details below)	
Further comments on the measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems	
No much progress is made in this field. Radio collaring, GIS and Remote sensing techniques are being used for conservation of mountain ecosystems through gaining insight into biodiversity of mountain biodiversity.	

Box LXXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

- a) outcomes and impacts of actions taken;
- b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
- c) contribution to progress towards the 2010 target;
- d) progress in implementing national biodiversity strategies and action plans;
- e) contribution to the achievement of the Millennium Development Goals;
- f) constraints encountered in implementation.

Outcomes and impacts of action taken

- a. Comprehensive protected areas system is in place
- b. New National parks and Ramsar Convention sites have been designated
- c. Initiation of a programme of captive breeding by the provinces
- d. Launching of many community based conservation projects
- e. National policy on provisions for sustainable use of natural resources
- f. Incentives to the local communities through trophy hunting, sport hunting, bee keeping and fruit processing
- g. Provision of basic services including infrastructure development, education, health, irrigation channels, and health.
- h. In situ conservation of medicinal plants
- i. Introduction of alternate energy technologies

Increase in the population of endangered and threatened wildlife species like Markhor, Ibex, snow leopard, Urial, Indus dolphin are the impacts of the actions taken.

Contribution to the achievement of the goals of the Strategic Plan of the Convention

- o Development of Biodiversity Action Plan (BAP) for Pakistan
- o Management of the protected areas
- o In-situ conservation activities
- o Ex-situ conservation activities
- o Improvement of legislation
- o Promotion of sustainable use of the natural resources
- o Promotion of MAB activities
- o Initiation of wetland project

Contribution to progress towards the 2010 target:

- Establishment of Federal biodiversity steering committee
- Constitution of provincial biodiversity steering committees
- Reconstitution of Biodiversity Working group

Establishment of Biodiversity secretariat
 Adoption of BAP by the Govt. of Pakistan
 Drafting and notification of biodiversity related laws

Progress in implementing national biodiversity strategies and action plans:

- o Completion of Red list of Mammals of Pakistan
- o Completion of Red list of Freshwater biodiversity of Pakistan
- o Identification of conservation priorities through conservation projects, technical workshops
- o Publication of many books and on state of environment and conservation in Pakistan
- o Formulation of management plans for national Parks
- o Funding of research projects on Biodiversity

Contribution to the achievement of the Millennium Development Goals:

- o In-situ conservation by establishing national parks
- o Up-gradation of National parks through formulation of management Plans
- o Ex-situ conservation at Federal and provincial levels
- o Sustainable use of natural resources
- o Promotion of research and training
- o Exchange of information
- o Programmes for public education and awareness

E. OPERATIONS OF THE CONVENTION

202. Has your country actively participated in subregional and regional activities in order to prepare for Convention meetings and enhance implementation of the Convention? (decision V/20)	
No	x
Yes (please provide details below)	
Further comments on the regional and subregional activities in which your country has been involved.	
No invitation for the participation in any regional or sub-regional activities to prepare for the Convention meetings and enhance participation has been received by the CBD focal point in Pakistan. However, Pakistan is hosting an experts meeting on Biodiversity for the ECO region during December 2006 that would be attended by ten ECO member states.	

203. Is your country strengthening regional and subregional cooperation, enhancing integration and promoting synergies with relevant regional and subregional processes? (decision VI/27 B)	
No	x
Yes (please provide details below)	
Further comments on regional and subregional cooperation and processes.	

<i>The following question (204) is for DEVELOPED COUNTRIES</i> Yes	
204. Is your country supporting the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes? (decision VI/27 B)	
a) No	

b) No, but programmes are under development	
c) Yes, included in existing cooperation frameworks (please provide details below)	
d) Yes, some cooperative activities ongoing (please provide details below)	
Further comments on support for the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes.	

205. Is your country working with other Parties to strengthen the existing regional and subregional mechanisms and initiatives for capacity-building? (decision VI/27 B)	
a) No	
b) Yes	x

206. Has your country contributed to the assessment of the regional and subregional mechanisms for implementation of the Convention? (decision VI/27 B)	
c) No	
d) Yes (please provide details below)	x
Further comments on contribution to the assessment of the regional and subregional mechanisms.	

Box LXXIV.

<p>Please elaborate below on the implementation of the above decisions specifically focusing on:</p> <ul style="list-style-type: none"> a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

F. COMMENTS ON THE FORMAT

Box LXXV.

Please provide below recommendations on how to improve this reporting format.
<p>The reporting format is quite elaborate and indeed serves the dual purpose of making the Secretariat aware of the status of the implementation of the convention. And on the other hand it provides an opportunity to the national focal point to assess the national status and trends, the process adopted in preparing this report was consultative therefore a number of individuals and related organizations involved in different aspects of biodiversity were sensitized on their respective obligations. A single Biodiversity unit cannot possibly deal with the diverse subjects covered under the Convention. Therefore, extensive reliance had to be made on external agencies and it has been quite a task to get information on the required parameters.</p> <p>The format of the report could be simplified by avoiding repeated questions and making the reporting</p>

more objective. It would also be worth considering to harmonize the formats of successive reports to the first national report, and also to include some sections to gauge the developments made since the last/ first report. Repetitive sections in the format imply that separate experts have devised the format after in depth deliberations in each subject/ section; however, it may be realized that in a developing party the personnel required to answer each section is limited. Therefore, it is felt that the reporting burden of the parties may be kept in view while devising formats.

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List of abbreviations used

ABS	Assess and Benefit Sharing
ADB	Asian Development Bank
AJK	Azad Jammu and Kashmir
BAP	Biodiversity Action Plan
BG	Bonn Guidelines
CBTHP	Community based trophy hunting Program
CDA	Capital Development Authority
CEPA	Community Education and Public Awareness
CERC	Centre for Environment Research and Conservation
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CoP	Conference of Parties
CR	Critically Endangered
EAW	Environment Assessment Worksheet? (Ref page 6)
EIA	Environment Impact Assessment
EPA	Environment Protection Agency
FAO	Food and Agriculture organization of UN
FATA	Federally Administered Tribal Areas
FSMP	Forestry Sector Master Plan
GBIF	Global Biodiversity Information Facility
GCISC	Global Change Impact studies Center
GDP	Gross Domestic Product
GEF	Global Environment Facility
GoP	Government of Pakistan
IEE	Initial Impact Assessment
IHDP	International Human Dimensions Program
ILO	International Labor Organization
IPO	Intellectual Property Organization Pakistan
ITPGRFA	International Treaty for Plant Genetic Resources for Food and Agriculture
IUCN	World Conservation Union
IYM	International Year of Mountains
KPT	Karachi Port Trust
KU	Karachi University
MACP	Mountain Areas Conservancy Project
MDGs	Millennium Development Goals
MEAs	Multilateral Environment Agreements Secretariat, Government of Pakistan
MINFAL	Ministry of Food Agriculture and Livestock
MoU	Memorandum of Understanding
NACA	Network of Aquaculture Centres in Asia-Pacific
NARC	National Agriculture Research Center
NCS	National Conservation Strategy
NEAP	National Environment Action Plan
NGO	Non Governmental Organization
NIO	National Institute of Oceanography
NP	National Park
NTFP	Non Timber Forest products

NWFP	North Western Frontier Province
PAMP	Protected Areas Management Project
PARC	Pakistan Agriculture Research Council
PEP	Pakistan Environment Program/Pakistan Environment Policy
PFI	Pakistan Forest Institute
PMNH	Pakistan Museum of Natural History
QAU	Quaid-i-Azam University, Islamabad
STREAM	Support to Regional Aquatic Resources Management
TCP	Trading Corporation of Pakistan
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WCS	Wildlife Conservation Society
WSSD	World Summit on Sustainable Development
WWF	Worldwide Fund for Nature
ZSD	Zoological Survey Department