Afghanistan

National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA)

Final Joint Report

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Cover photo: Land degradation through rain-feed agriculture in Sar- Rostaq, Takhar: unstable uplands are eroding into lower agricultural lands. © UNEP – Wali Modaqiq, 2008

The National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA) Final Report has been financed by the Global Environmental Facility (GEF) and implemented by the Government of the Islamic Republic of Afghanistan with technical assistance and support from the United Nations Environment Programme (UNEP).

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Foreword from NEPA

The pressing issues of desertification, biodiversity loss and climate change threaten the very foundations of rural livelihoods in Afghanistan. Drought and mismanagement of our water resources affect agricultural productivity, desertification is reducing the carrying capacity of our land, and the unsustainable harvesting of our forest resources marks the loss of a national treasure. It is in this context that the Government of the Islamic Republic of Afghanistan has paid considerable attention to environmental issues in recent years. The National Environmental Protection Agency (NEPA) has been established as an independent agency with the goal to "protect the environmental integrity of Afghanistan and support sustainable development of its natural resources through the provision of effective environmental policies, regulatory frameworks and management services that are also in line with the Afghanistan Millennium Development Goals (MDGs)".

The Afghan Government has also fully recognized the important role that the Afghan people have to play in the sustainable management of our natural resource base. Living alongside natural resources and interacting with them on a daily basis, the active participation of local communities in combating desertification, adapting to climate change, and preventing biodiversity loss.

Since 2002, UNEP and GEF have provided consistent technical and financial support to institutional strengthening and capacity building within the environmental field in Afghanistan. This report. *National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA), 2008,* represents one example of the important outputs that have been generated during this period. Through a highly consultative process the report identifies gaps and priority needs for capacity building in the country at various levels to help implement the Rio Conventions. The report also identifies the cross-cutting issues between the Rio Conventions, and priority actions for adapting to the impacts of climate change.

I would like to express my thanks to GEF and UNEP for their support in the preparation of this report. The Afghan Government and international community alike will benefit greatly from the report as environmental management policies are debated, approved and implemented. The implementation of the recommendations contained in this report requires involvement and participation of everyone. They also provide an opportunity to enhance the implementation of the Rio Conventions in Afghanistan for the benefit of present and future generations.

Mostapha Zaher
Director-General
National Environmental Protection Agency, Afghanistan

Foreword from UNEP

Natural resources provide the livelihood basis for up to 80% of the Afghan population. Their sustainable use and management is therefore of essential importance to the well-being of both present and future generations. At the same time, Afghanistan's natural resources are being degraded as immediate needs, ongoing conflict, internal displacement, high rates of population growth, low levels of education, and poverty, result in a prioritization of survival over the longer-term sustainability of natural resource use and management. This has devastating consequences, particularly in an environment where the balance between precipitation and primary production is very finely balanced as the effects of natural disasters, such as drought and flooding, are magnified many times when the ability of the natural resource base and associated livelihoods to recuperate have already been weakened.

The potentially far-reaching impacts of biodiversity loss, climate change and desertification for the Afghan people has led the Government of the Islamic Republic of Afghanistan to sign the United Nations Convention on Biological Diversity (UNCBD), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC) (also known as the 'Rio Conventions').

With funding from the Global Environment Facility (GEF), the United Nations Environment Programme (UNEP) has supported the Government of the Islamic Republic of Afghanistan to implement the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and the National Adaptation Programme of Action for Climate Change (NAPA). These aim to identify country level capacity building priorities to address global environmental issues and enhance the capacity of Afghanistan to meet its existing commitments under the UNCBD, UNCCD and UNFCCC; and identify and communicate urgent and immediate adaptation needs of Afghanistan to the effects of climate change.

This report presents a comprehensive summary of an intensive two-year process of discussion, workshops, analysis, and capacity building to elaborate a capacity building strategy for compliance with the Rio Conventions and to identify priority activities for adapting to climate change. The report is intended as a first step in a dynamic and long-term capacity building and adaptation process and I sincerely hope that it will be useful not only to the people of Afghanistan, but also to all donor countries and international organizations supporting the development of sustainable livelihoods and a healthy natural resource base.

Belinda Bowling
Acting Programme Manager
United Nations Environment Programme, Afghanistan Office

Executive Summary

Up to 80 percent of Afghan people rely on the country's natural resource base for their livelihoods. Natural resource management is therefore of paramount importance to sustainable development and improved local livelihoods. However, in developing countries and particularly in post-conflict countries such as Afghanistan, natural resource management is greatly affected by limited human, institutional and physical capacities. In the light of this situation, the Global Environment Facility (GEF) supports the implementation of the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA) Projects. These projects, which have been combined into one process in Afghanistan, support the identification of priority capacity needs for the implementation of the Rio Conventions, namely, the United Nations Convention on Biological Diversity (UNCBD), United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC), and the identification of key activities that can mitigate the effects of climate change.

Afghanistan has implemented the NCSA and NAPA processes with support of the United Nations Environment Programme (UNEP) and with funds from the GEF. This final NCSA and NAPA Report is supplemented by three Thematic Reports that specifically address the areas of biodiversity, desertification and climate change. The objectives of the NCSA are to: (1) identify, confirm or review priority issues for action within the thematic areas of biodiversity, climate change and desertification, respectively; (2) explore related capacity needs within and across the three thematic areas; (3) catalyse targeted and coordinated action and requests for future external funding and assistance; and (4) link country action to the broader national environmental management and sustainable development framework. The objective of the NAPA is to serve as a simplified and direct channel of communication for information relating to the urgent and immediate adaptation needs of Afghanistan to the effects of climate change.

The environment in Afghanistan is characterized by a precarious balance between low levels of precipitation and primary production. The disruption of traditional practices that has resulted from insecurity, migration, a breakdown of social structures, poverty and drought has led to over exploitation of the natural resource base. Today, we can observe a situation of biodiversity loss, land degradation for both natural and anthropogenic reasons, the denudation of bio-physical protection which accelerates wind and water erosion, and a real lack of productivity in the arid zones. Impoverished soils are reducing carrying capacity, resulting in overstocking, cultivation of unsuitable land for cash and subsistence crops, and exposure of soils to wind and water erosion. Conflicts are generated by competing land uses and decreased natural resource and water availability. The consequences have included severe flooding, soil and wind erosion, deforestation, reduced pasture quality, decimation of wildlife populations, air pollution, decrease in the quality and quantity of water for irrigation and drinking, and so on, all compounded by macro level climatic changes, especially those related to precipitation.

While there is awareness within the government of some of the consequences of biodiversity loss and desertification, particularly in the face of climate change, the pressure for survival at the local level and economic growth at the national level in an insecure country has resulted in little substantive action being taken to address the issue. In this context the NCSA and NAPA processes, together with the Rio Conventions themselves, provide Afghanistan with an opportunity to orientate national development in a manner that fosters national ownership, promotion of partnerships, adaptation and capacity building for sustainable natural resource management.

Methodology

The NCSA and NAPA process was implemented in four phases: (1) inception phase; (2) thematic situation analysis and identification of priority activities for adapting to climate change; (3) identification of cross-cutting capacity needs for improving compliance with the Rio Conventions; and (4) development of the NCSA Action Plan. The process was operationalized by a steering committee responsible for overall guidance and four working groups. Members of the working groups were predominantly government staff, but also included members of the UN and national

non-governmental organizations. The working groups were technically supported by UNEP. The implementation of the NCSA and NAPA process was initiated by an inception workshop that launched the project. To summarize, the process realized was a country-driven consultative process of analysis and planning that determined national priorities and needs for capacity development to protect the global environment taking into account the Rio Conventions.

Constraints and opportunities for compliance with the Rio Conventions

The major constraints for the implementation of the Rio Conventions, as identified by the NCSA process, were cross-cutting for the three thematic areas (biodiversity, desertification and climate change) and therefore merited a synergistic intervention approach. They focused on: conflict and poverty; weak policy and legal frameworks for facilitating compliance with the Rio Conventions; weak inter-institutional coordination mechanisms; lack of strategies and plans for implementation of the Rio Conventions; low awareness of the Rio Conventions and associated issues; lack of data and information; inadequate technical capacities to comply with the Rio Conventions; unsustainable land and resource management practices; lack of infrastructure; inadequate funding; and limited research capacities.

Cross-cutting opportunities for improving compliance with the Rio Conventions include: existing supportive institutions; initial legislative framework; participatory approaches to natural resource management recognized; supportive international community; and potential for mainstreaming and tapping global resources.

NCSA Action Plan

The NCSA Action Plan was developed according to seven broad areas of intervention derived from the cross-cutting analysis of capacity building needs and opportunities identified during the thematic assessments:

- Institutional strengthening for full participation in the Rio Conventions through strengthening strategic planning, establishing effective mechanisms for inter- and intra-institutional coordination, and developing human resource capacities;

- Legal, policy and implementing frameworks improved through the development of new legislation related to natural resource management; human and institutional capacity building for the implementation of the new frameworks; and awareness raising activities, both within the Government itself and also between the Government and the general public.

- Education and public awareness improved through development of materials and realization of awareness raising activities.

- Sustainable land and resource management through the implementation of new natural resource legislation in a participatory manner that involves systems of adaptive learning and facilitates the development of synergies and exchange of experiences as implementation progresses.

- Research strengthened through the development of strategic incremental research plans that focus on specific priority issues together with training programmes in research design and implementation.

- Technical and managerial capacity for the implementation of the Rio Conventions strengthened by reviewing school and University curricula to integrate Rio Convention issues; preparation of training materials; and training of key actors in technical and legal aspects of the Conventions, negotiation skills, conflict resolution and management, participatory methodologies, monitoring and evaluation, community based natural resource management (CBNRM), communications, research and data management, policy and law development and analysis, and related issues specific to each of the three Rio Conventions.

NAPA

Afghanistan has an arid and semi-arid continental climate with cold winters and hot summers. The climate varies substantially from one region to another due to dramatic changes in topography.

The wet season generally runs from winter through early spring, but the country on the whole is dry, falling within the Desert or Desert Steppe climate classification. The snow season averages October-April in the mountains and varies considerably with elevation.

Key climatic hazards in Afghanistan were identified by Working Group members to include periodic drought; floods due to untimely and heavy rainfall; flooding due to thawing of snow and ice; increasing temperatures; frost and cold spells; hail, thunder and lightening, and 120-day winds. The compilation of a sensitivity matrix indicated that droughts, floods due to untimely and heavy rainfall, and rising temperatures present the greatest hazards to ecosystem services, livelihood activities and means of livelihood in Afghanistan. Sectors identified as most vulnerable to climate change were those of water resources, forestry and rangeland, and agriculture.

The NAPA vision for Afghanistan is to increase awareness amongst all stakeholders of the effects of climate change and climate variability on their lives and to develop specific activities that build capacity to respond to current and future climate change threats. The objectives of the Afghanistan NAPA are to: (1) identify priority projects and activities that can help communities adapt to the adverse effects of climate change; (2) seek synergies with existing multi-lateral environmental agreements (MEAs) and development activities with an emphasis on both mitigating and adapting to the adverse effects of climate change; and (3) integrate climate change considerations into the national planning processes.

The working group identified a total of 51 potential activity options for adapting to climate change. Through a series of evaluation exercises, two adaptation options were shortlisted and developed into summary project proposals: *Improved Water Management and Use Efficiency* and *Land and Water Management at the Watershed Level.*

Monitoring and evaluation

Monitoring and evaluation of the NAPA and NCSA will involve a wide range of stakeholders and will be conducted at multiple levels (local, regional and national). At the national and regional levels, the National Environmental Protection Agency (NEPA) will lead the monitoring and evaluation of the implementation of the NCSA action plan, in collaboration with other actors.

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Acronyms and Abbreviations

3NR	3rd National Report
ACC	Afghan Conservation Corps
ADB	Asian Development Bank
AgroMet	Agro Meteorological Project in Afghanistan
ANDMA	Afghanistan National Disaster Management Authority
AREU	Afghanistan Research and Evaluation Unit
ATO	Afghan Tourism Organization
BSP	Biodiversity Support Programme
BW-WG	Biodiversity and Wetlands Working Group
CBNRM	Community Based Natural Resource Management
CCDP-WG	Climate Change and Disaster Preparedness Working Group
CDC	Community Development Council
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CFC	Chlorofluorocarbons
CG3	Infrastructure and Natural Resources Consultative Group (i-ANDS)
CITES	Convention on the International Trade of Endangered Species of Flora and Fauna
COP	Conference of the Parties
CRS	Catholic Relief Services
CSO	Central Statistics Office
DNA	Designated National Authority
DoS	Department of State
DRWR-WG	Desertification, Rangeland and Water Resources Working Group
EC	European Commission
EIA	Environmental Impact Assessment
EST	Environmentally Sound Technology
FAO	Food and Agriculture Organization of the United Nations
FEWS Net	Famine Early Warning Systems Network
FSP	Full Size Project
GAIN	Green Afghanistan Initiative
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GTZ	Gesellschaft für Technische Zusammenarbeit
HDI	Human Development Index
i-ANDS	Interim Afghan National Development Strategy
ICARDA	International Center for Agricultural Research in the Dry Areas
ICIMOD	International Centre for Integrated Mountain Development
IFDC	International Fertilizer Development Center
IIP	Implementation and Investment Program
INC	Initial National Communication
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
i-PRSP	Interim Poverty Reduction Strategy Paper
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
MAIL	Ministry of Agriculture, Irrigation and Livestock
MCA	Multi-Criteria Analysis
MDG	Millennium Development Goal

MEA	Multilateral Environmental Agreement
MEW	Ministry of Energy and Water
MFTA	Ministry of Frontiers and Tribal Affairs
MHE	Ministry of Higher Education
MIC	Ministry of Information and Culture
MMI	Ministry of Mines and Industry
MRRD	Ministry of Rural Rehabilitation and Development
MoE	Ministry of Education
MoH	Ministry of Health
MoI	Ministry of the Interior
MSP	Medium Size Project
NAP	National Action Programme
NAPA	National Adaptation Program of Action
NBSAP	National Biodiversity Strategy and Action Plan
NCCC	National Climate Change Committee
NCSA	National Capacity Needs Self Assessment for Global Environmental Management
NEPA	National Environmental Protection Agency
NFP	National Focal Point
NGO	Non-Governmental Organization
NPA	Natural Protected Area
NPFS	National Programme for Food Security
NRVA	National Risk and Vulnerability Assessment
NSP	National Solidarity Programme
ODP	Office of Disaster Preparedness
ODS	Ozone Depleting Substances
PCC	Project Coordination Committee
PDD	Project Design Document
PEACE	Pastoral Engagement, Adaptation and Capacity Enhancement
PPP	Purchasing Power Parity
PSC	Project Steering Committee
Rio Conventions	Collectively UNFCCC, UNCBD and UNCCD
RLAP	Rural Land Administration Project
RMP	Refrigerant Management Plan
SEA	Save the Environment Afghanistan
SLM	Sustainable Land Management
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDRO	United Nations Disaster Response Office
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VAM	Vulnerability Analysis and Mapping Unit
WCS	Wildlife Conservation Society
WFP	World Food Programme
WG	Working Group
WG14–3.6	Natural Resources and Environment Working Group (i-ANDS)
WMO	World Meteorological Organization

1 Introduction

1.1 The National Capacity Needs Self Assessment for Global Environmental Management (NCSA) and the National Adaptation Programme of Action (NAPA)

The implementation of sustainable natural resource management strategies is highly dependent upon human and institutional capacities, and the overall enabling policy and legal environment. In developing countries, and particularly in post-conflict developing countries, the challenges associated with strengthening capacities to effectively secure sustainable natural resource management are substantial. Moreover, it is the citizens of these developing countries that are most affected by the consequences of unsustainable natural resource use and management, given that they are highly dependent on the natural resource base to meet their daily subsistence and livelihood needs and are already experiencing high levels of poverty. This is especially so in precarious semi-arid environments such as those that characterize Afghanistan. Widespread poverty, insecurity of tenure and resource access, and the ongoing conflict, generate a situation where short-term needs are frequently prioritized over long-term sustainability and the effects of desertification, drought and climate change are particularly evident.

Afghanistan is a signatory to the three Rio Conventions, namely the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (UNCBD) and the Convention to Combat Desertification (UNCCD) (henceforth the "Rio Conventions"), and therefore is committed to their implementation. In light of the fact that the viability of the (already precarious) livelihoods of rural Afghans is being increasingly threatened by the effects of climate change, loss of biodiversity, land degradation for both natural and anthropogenic reasons, the destruction of bio-physical protection which accelerates wind and water erosion, a real lack of productivity in the arid zones, and biodiversity loss, comprehensive moves towards the implementation of the Rio Conventions are of critical importance to the Afghan people.

At the same time, Afghanistan faces a number of challenges in its efforts to fully comply with the obligations of these Conventions. These are primarily related to weak human and institutional capacities that can be associated with more than two decades of conflict that crippled the country. Furthermore, ongoing conflict and extremely high levels of poverty (Afghanistan being ranked on the human development index – a composite indicator that measures education, longevity, and economic performance – as 174 out of the 178 countries listed[1]), mean that other development priorities such as health, education, infrastructure, and so on, are given priority over environmental management. Notwithstanding these challenges, a number of important advances have been realized to move towards compliance with the three Rio Conventions.

Amongst other initiatives that are detailed in this report, Afghanistan, in a bid to address capacity needs that will facilitate compliance with the Rio Conventions, and to mitigate the negative impacts of climate change, has benefited from Global Environment Facility (GEF) support for the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and the development of a National Adaptation Programme of Action for Climate Change (NAPA) projects.

NCSA is a mechanism for realizing a comprehensive assessment of country capacities and associated capacity needs to fulfill the requirements of the Rio Conventions. Specific objectives to be accomplished through the NCSA include, *inter alia*:[2]

- To identify, confirm or review priority issues for action within the thematic areas of biodiversity, climate change and desertification, respectively;
- To explore related capacity needs within and across the three thematic areas;
- To catalyse targeted and coordinated action and requests for future external funding and assistance; and
- To link country action to the broader national environmental management and sustainable development framework.

NAPA is a mechanism within the UNFCCC, specifically designed to help Least Developed Countries (LDCs) to set priority activities to be undertaken to meet their immediate needs and respond to their most urgent concerns with regards to adaptation to the adverse

effects of climate change. Adaptation is a process by which individuals, communities and countries seek to cope with the consequences of climate change. The objective of a NAPA is to serve as a simplified and direct channel of communication for information relating to the urgent and immediate adaptation needs of the LDCs.[3]

GEF support for the preparation of NCSA follows the GEF Council Decision which requests the GEF Secretariat to initiate processes that enable the self-assessment of capacity building needs to begin immediately in those countries that request such assistance. The overall aim of GEF support for the NCSA is to support a country-driven consultative process of analysis and planning that determines national priorities and needs for capacity development to protect the global environment taking into account the Rio Conventions.[4]

The UNFCCC Conference of the Parties (COP) requested the GEF to support the preparation and implementation of NAPAs through the Least Developed Countries Fund (LDCF) which operates separately from the GEF Trust Fund. All countries which are Party to the Convention and are classified as LDCs have access to this support through one of the GEF's Implementing Agencies, in the case of Afghanistan, UNEP.

In an effort to promote increased coherence and efficiency between reporting exercises, the NAPA and NCSA have been combined into one process for Afghanistan. This report represents the outcome of this process, presenting priority capacity needs, assessing the most important impacts of climate change, and exploring possible adaptation measures.

The NCSA and NAPA processes and results documented here must be considered as the first step in a dynamic and long-term capacity building and adaptation process where the identification of needs and priorities will depend on a number of factors that include emerging scientific and technological information, collective decisions through global environmental conventions, and the development of national policy frameworks.

1.2 Desertification

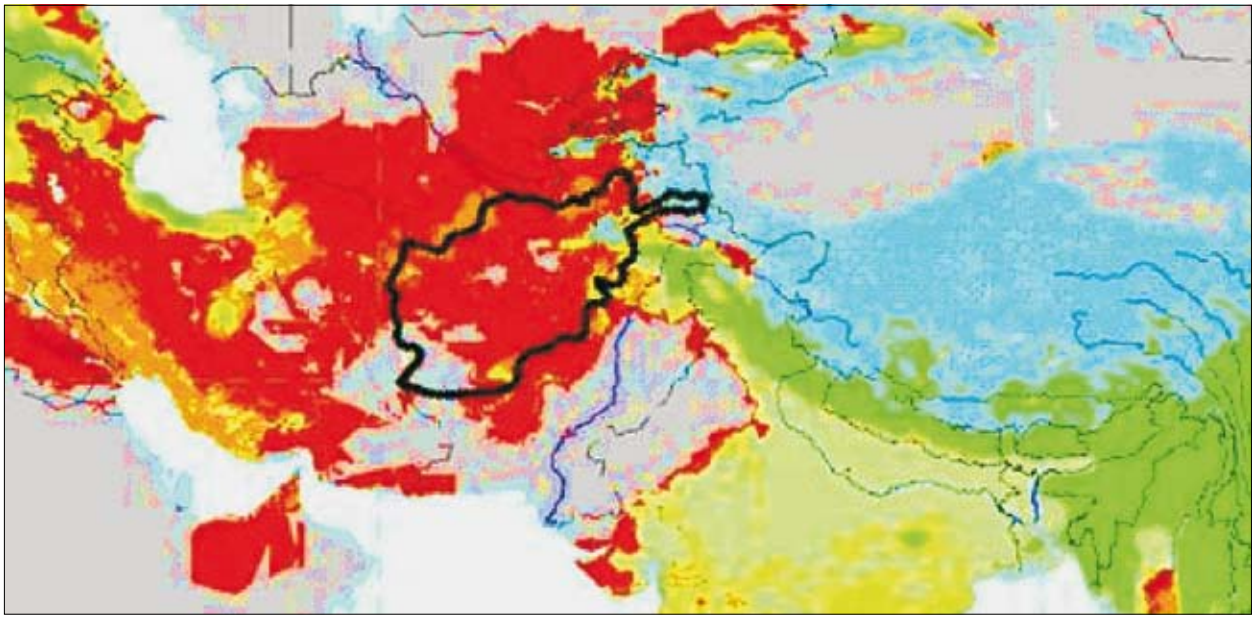
Desertification and combating desertification are defined (respectively) by the UNCCD as:

…land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities.

Combating desertification includes activities which are part of the integrated development of land in arid, semi-arid and dry sub-humid areas for sustainable development which are aimed at:

(a) Prevention and/ or reduction of land degradation;
(b) Rehabilitation of partly degraded land; and
(c) Reclamation of desertified land.

Figure 1. Assessment of vulnerability to desertification



Red indicates highly vulnerable. Source: US Department of Agriculture, 1998.

Desertification in Zaranj, Nimroz

Desertification is of major international concern. Globally it is estimated that 70 percent of the world's drylands (excluding very arid deserts) or some 12 million square kilometers are already degraded, undermining the land's productivity by adversely affecting the fertile topsoil, vegetation cover and crop production. As such, desertification contributes to dynamics that include poverty, famine, migration and large economic losses. More than 250 million of the earth's inhabitants are directly affected by desertification and the livelihoods of one billion people – nearly one-fifth of the world's population – are at risk.

According to the 2006 National Report of the Ministry of Agriculture, Irrigation and Livestock (MAIL), desertification in Afghanistan affects more than 75 percent of the total land area in northern, western and southern regions where widespread grazing and deforestation have reduced vegetation cover and catalyzed accelerated land degradation (see Figure 1). Although empirical data on the extent and impact of desertification in Afghanistan is lacking, broad indicators show that the cost of desertification to Afghanistan is extremely high and ever increasing. Soil fertility is being degraded by poor agricultural practices; forests are being cut down unsustainably to provide wood for fuel and construction; grazing patterns have changed as conflict, land claims and drought have affected traditions; and irrigation systems are being affected by siltation and flooding.

Afghanistan signed UNCCD on 1st November 1995 and the Convention entered into force on 26th December 1996.[5] The focal point for the Convention is the Technical Deputy Minister of MAIL. The UNCCD has one objective:

'…to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/ or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas.'

The Convention notes that achieving this objective will require long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level. Central to meeting the provisions of the Convention is the development and implementation of a National Action Programme (NAP) to prevent land degradation, with a focus on public participation and assisting local communities to help themselves in preventing and reversing the effects of degradation and drought.[6]

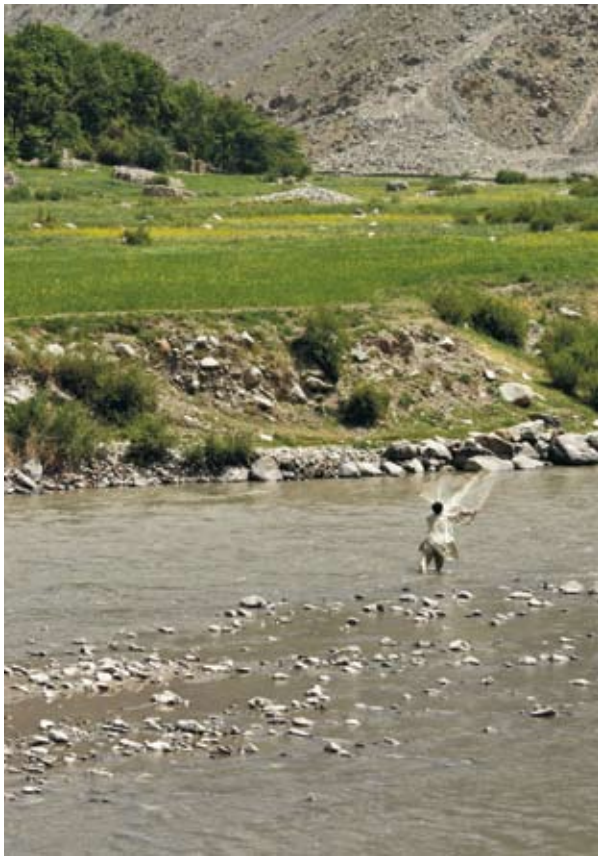
1.3 Biological diversity

Biodiversity is a contraction of the term "biological diversity" and is defined by the UNCBD as:

… the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Central to the concept of biodiversity is the idea of "variability" or the differences among collections of living things. This variability can arise from number or types of species, from the different ways that species are organized into biotic communities and ecosystems, and from the vast array of genetic differences existing between individuals, populations and species.

Biodiversity provides goods and services that underpin sustainable development in many ways. First, it supports the ecosystem functions essential for life on Earth, such as the provision of fresh water, soil conservation and climate stability. Second, it provides products such as food, medicines and materials for industry. Finally, biodiversity is at the heart of many cultural values. In spite of its multiple values to mankind, the rate of biodiversity loss is increasing at an unprecedented rate.



Fishing in Farkhar River, Takhar

Afghanistan's biodiversity is manifested in many ways: number of species, differences in groups of species in various areas, the widely differing ecosystems found in various parts of the country and the genetic variation found in natural species and in agricultural crops and animals. Biodiversity has been termed "the wealth of the poor"[7] because the poor tend to be rural people living close to the land and dependent on it for the goods and services provided by biodiversity, e.g. productive crop and grazing land, fuel, building materials, wild fish and game. In Afghanistan, the primary value of biodiversity lies in the tangible goods and services that support rural livelihoods. The most obvious of these are the direct uses of biodiversity components such as traditional crops, fruits, grazing, fuel, timber harvesting, fishing, and hunting. Less obvious are the "ecosystem services" provided by biodiversity. These include soil fertility, erosion control, crop pollination, and climatic stability, to name but a few.

The ecosystem services provided by biodiversity are rarely understood and are usually taken for granted, but as Diamond (2005) has argued, loss of these ecosystem services has often contributed in a central way to the decline and ultimate collapse of societies.[8] With up to 80 percent of the Afghan population depending upon natural resources for their livelihoods, the loss of biodiversity will have widespread effects on Afghan society that will be particularly evident in rural areas.

Afghanistan became a signatory to the UNCBD in June 1992 and ratified the Convention in September 2002. MAIL is the designated national focal institution for UNCBD. The UNCBD has the following objectives:

…the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.[9]

The Convention emphasizes both the importance of developing national strategies, plans or programmes for the conservation and sustainable use of biological diversity, and the need to integrate conservation and sustainable use considerations into relevant sectoral or cross-sectoral plans, programmes and policies.

1.4 Climate change

Climate change is defined by the UNFCCC as:

... a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

The average temperature of the earth's surface has risen by 0.74 degrees centigrade (°C) since the late 1800s.[10] It is expected to increase by another 1.4°C to 5.8°C over the period 1990 to 2100 – a rapid and profound change.[11] Even if the minimum predicted increase takes place, it will be larger than any century-long trend in the last 10,000 years. The principal reason for the mounting thermometer is a century and a half of industrialization: the burning of ever-greater quantities of oil, gasoline, and coal, the cutting of forests, and the practice of certain farming methods. These activities have increased the amount of "greenhouse gases" in the atmosphere, especially carbon dioxide, methane, and nitrous oxide. Such gases occur naturally and they are critical for life on earth; keeping some of the sun's warmth from reflecting back into space. But in augmented and increasing quantities they are pushing the global temperature to artificially high levels and altering the climate. Eleven of the last 12 years are the warmest on record, and 1998 was the warmest year.[12]

Whereas climate change is a global phenomenon, the effects are local. Physical impacts are determined by geography and micro-level interactions between global warming and existing weather patterns. Human development impacts also vary as changes in climate patterns interact with pre-existing social and economic vulnerabilities.[13] In Afghanistan, impacts are likely to be particularly severe due to the arid and semi-arid nature of the country and the extreme poverty within which a large proportion of the Afghan population currently lives.

Black smoke rising from the chimneys of an asphalt factory, Baghlan

Afghanistan signed the UNFCCC on 12 June 1992 as a Non-Annex I Party to the Convention (ratification took place on 19th September 2002 by the Transitional Authority and the Convention entered into force on the 18th of December 2002). Afghanistan is yet to accede to the Kyoto Protocol (and is therefore currently unable to become a Clean Development Mechanism - CDM - host country). The ultimate objective of the UNFCCC and any related legal instruments that the Conference of the Parties (COP) have adopted/ may adopt is:

...to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

2 General Country Characteristics

2.1 Introduction

Afghanistan is an arid country that covers slightly over 652,000 km^2.[14] The dominating feature is the central massif that forms the spine of the country. The Hindu Kush is the general name given to this 1,000 km mountain system that extends southwesterly from northern Pakistan, descending in elevation into the low-lying semi-deserts of western and north-western Afghanistan. The highest point in Afghanistan is Mount Nowshak at 7,484m and the lowest 240m in Qarqin district of Jawzjan province. Approximately 27 percent of Afghanistan lies above 2,500m elevation.[15] The mountains grade into semi-desert open woodlands and shrublands forming a great crescent surrounding the northern, southern and western parts of the mountainous regions. Extensive desert regions are found in the southwest while the extreme east is characterized by monsoon-influenced forests. See Figure 2 and Figure 3.

There are eight water basins flowing radially out from the Hindu Kush System. Three join the Indus River in Pakistan while the other five have no outflow and dry up in closed basins either inside or outside the country.

Afghanistan has an arid and semi-arid continental climate with cold winters, hot summers and most precipitation falling as snow in the winter and early spring. Like temperature, precipitation is strongly influenced by elevation and ranges from 0mm and 1,000mm per annum. The source of most of Afghanistan's surface water is winter snow falling at high elevations. Freitag (1971) argues that the long period of summer drought limits Afghanistan's vegetation more than does mean annual precipitation, given that the winter snows provide moisture during the spring and early summer, that that this source of moisture is not available thereafter.[16]

Afghanistan is an agriculture-based economy, but only a relatively small part of the land area – an estimated 12 percent - is suitable for arable farming or horticulture (irrigated and rain-fed). More than half of all irrigated arable land lies north of the main Hindu Kush range in the drainage systems of the Amu Darya River. Much of the remaining irrigated land lies in the river basins draining southwest, west and southeast out from the central massif, most significantly the basin of the Helmand River system. Although estimates vary, it is thought that about 3.3 million ha (five percent of the total land area) is irrigated and regularly cropped, while 4.5 million ha (seven percent) is rain-fed and is cropped opportunistically, depending on precipitation.

Figure 2. Ecoregions of Afghanistan

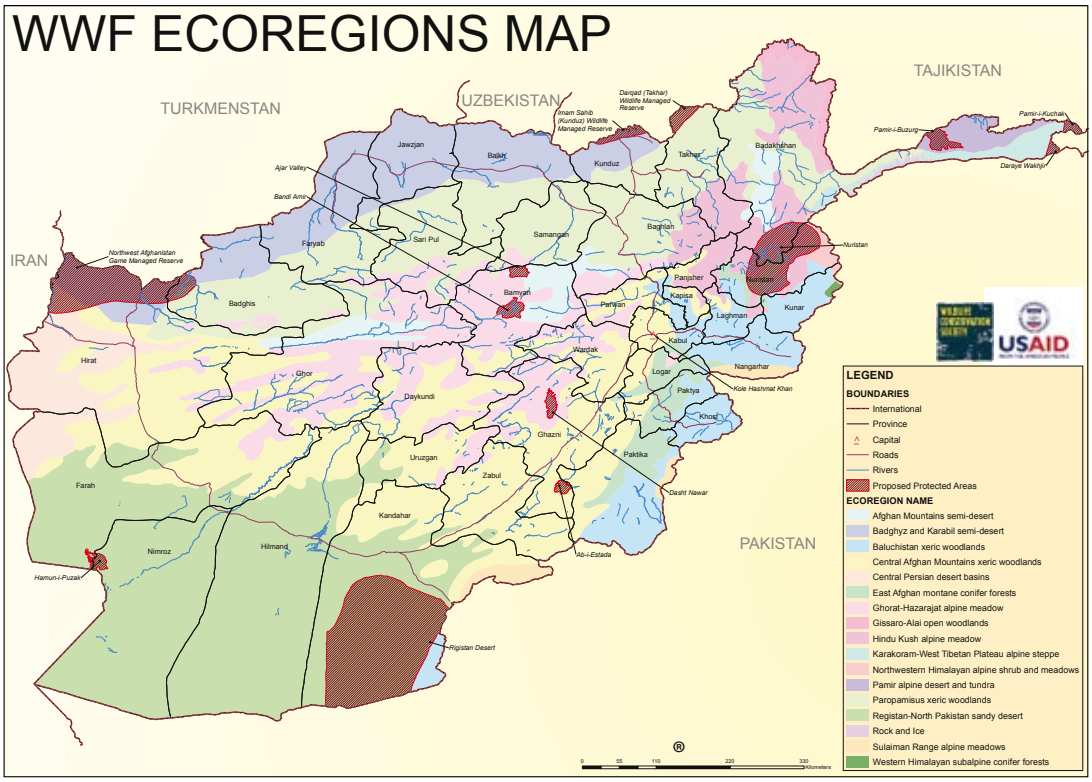
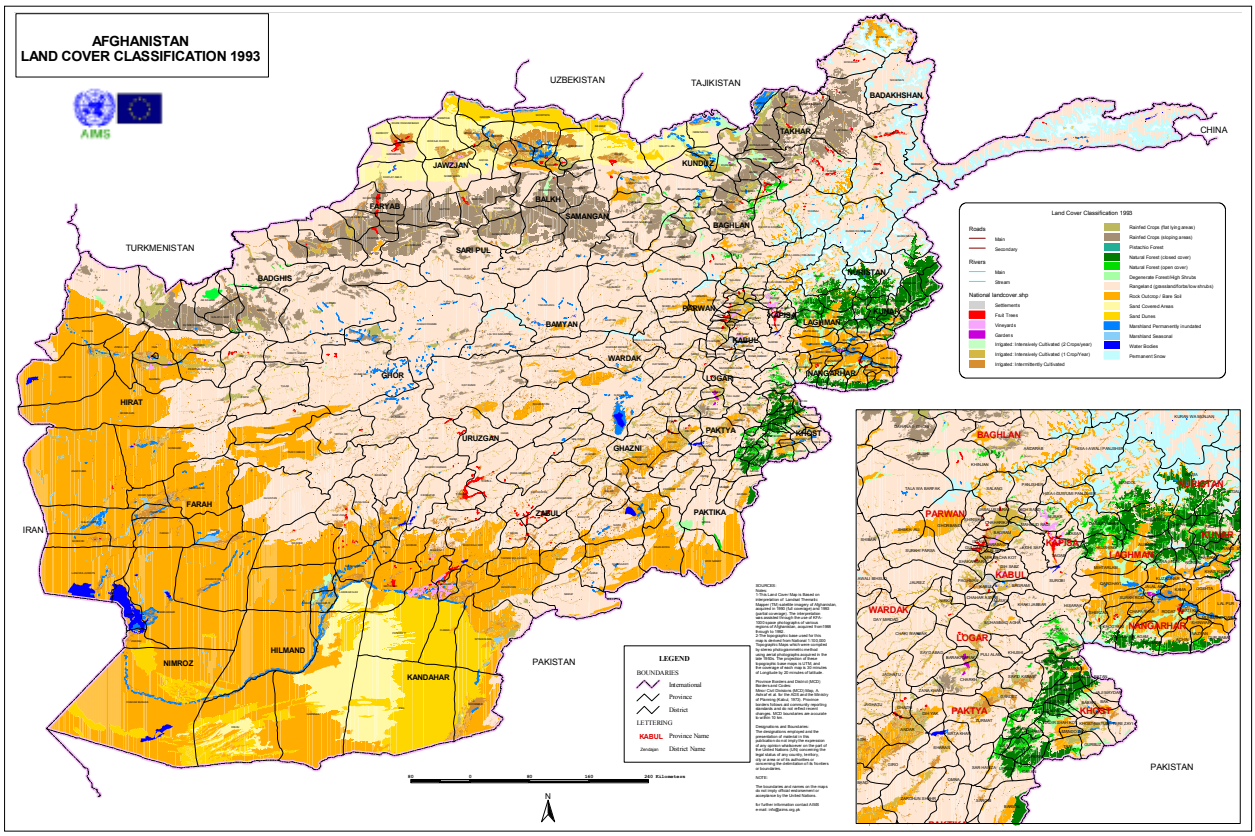


Figure 3. Landcover classification for Afghanistan (1993)



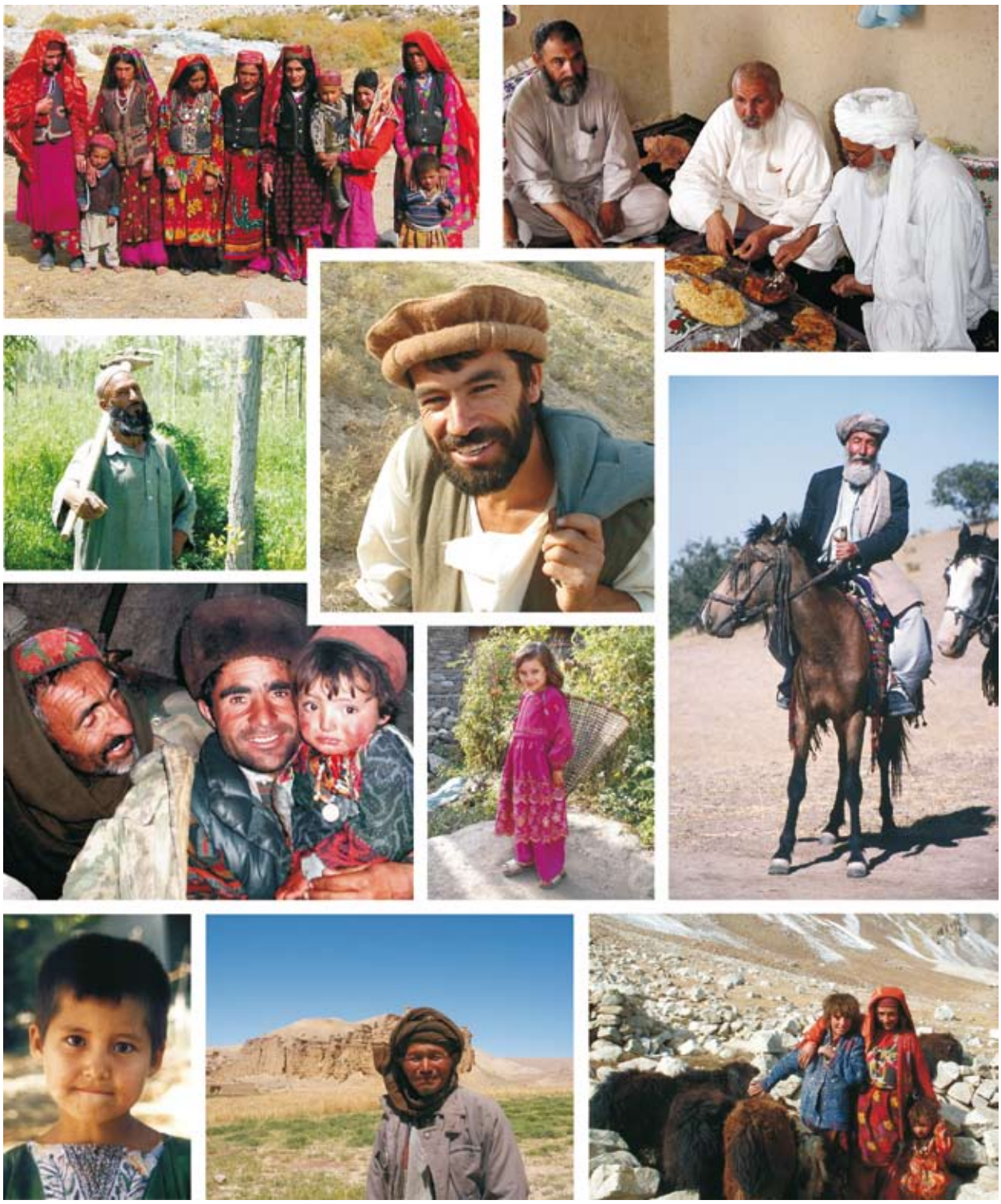
Most of the rain-fed land lies in a 900-km long belt lying west to east along the northern foothills and plains. Increasing population pressure on available land over the last two to three generations has led to expansion of rainfed wheat crops into traditional grazing land and high mountains. With the increasing population and the return of refugees, the agriculture resource base is under considerable stress.

2.2 Human population

Afghanistan is culturally diverse, with around 20 distinct ethnic groups. Some groups tend to occupy particular areas of the country, while others are more scattered, nomadic or urban. The two principal languages are Pashto (the language of the Pashtuns) and Dari (a variant of Persian). Afghanistan is a Muslim country, with the majority Sunni and most of the remainder Shi'a. The country is divided into 34 provinces, with Kabul as the largest city and the administrative capital. Afghanistan is home to a large number of different tribes and ethnic groups including Pashtoon, Tajik, Hazara, Baloch, Gojor, Uzbek, Turkman, Nooristani, Pashayee and Brahawai.

Demographically speaking, the most recent population census carried out in 1979 revealed that Afghanistan's population amounts to some 13.1 million inhabitants. The country's population growth rate has been estimated at 1.9 percent per annum, one of the highest in south-east Asia.[17] Based on a projection of population growth rates, the estimated population in 2005 was 26 million. With an area of slightly over 652,000 km^2, average population density works out at approximately 40 persons per square kilometer. However, given that much of Afghanistan is comprised of mountains and desert that are not inhabitable on a permanent basis, population densities are many times higher along fertile and irrigated valley floors. In 1950, an estimated 94 percent of the population dwelt in rural areas. By 2000, this figure had fallen to 78 percent, with urban populations rising largely because of internal displacement driven by drought and conflict.

The nomadic/ transhumant *Kuchis* are mainly ethnic Pashtun (but also include Dari speaking groups of Arab descent and Gujor groups). They can be broadly grouped into two types of *Kuchi*: 1) transboundary *Kuchis* or *Kuchian Obori* who migrate into neighboring Pakistan for the winter, and 2) transhumant *Kuchis* or *Kuchian Dawragard* who migrate within the country; to the south and west in the winter and to the north and north-east in the



Faces of Afghanistan

summer. Collectively they own about one-third of the national flock. Typically flocks are comprised of 80 percent sheep and 20 percent goats, with horses, donkeys and camels used for transport and their traditional homes being black goat-hair tents. Many of the Pashtun *Kuchis* winter in Pakistan as far south as the southern Punjab and the Sind, moving back to Afghanistan in the spring and gradually into the high mountains to 3,000 m altitude and above in the summer as the snow recedes. Their mobility has facilitated their adaptation to climate change, although the degree to which this is the case is being increasingly limited by other socio-economic factors that include disruption of traditional migration routes, conflict, and increased competition with relatively sedentary livestock herders.

2.3 Economy

In late 2002, the World Bank reported that "…The Afghan economy was reeling from protracted conflict and severe drought, with cereal grain production down by half, livestock herds decimated, orchards and vineyards destroyed by war and drought, more than five million people displaced as refugees in neighboring countries, and remaining economic activities steered in an informal or illicit direction by insecurity and lack of support services. The Afghan state had become virtually non-functional in terms of policy making and service delivery, although the structures and many staff remained."[18]

From 2002, main economic indicators in Afghanistan have improved at a fast rate (albeit from a very low starting point). The World Bank reports a real gross domestic product (GDP) growth rate of 14 percent in 2005/06, following increases of 29 percent in 2002/03, 16 percent in 2003/04 and 8 percent in 2004/05 (lower due to poor precipitation in that year), resulting in a cumulative increase of 84 percent during the past four years.[19] Over the same period, GDP per capita has increased by 139 percent to reach US$ 294 in 2005/06.

Despite its illegality, opium poppy is the most important economic and agricultural crop in Afghanistan. The Afghan Opium Survey for 2007 found that net opium poppy cultivation, after eradication, had risen by 17 percent from 2006 to cover 193,000 hectares of land. While the number of poppy-free provinces has increased from six to 13 over the same period, the number of people involved in opium production has also risen - from 2.9 million to 3.3 million, or 14.3 percent of Afghanistan's total population. In 2006, poppy cultivation also rose (with estimates of an increase of 60 percent as compared to 2005), largely as a result of the insurgency and the resulting insecurity. Afghanistan is currently a world leader in the production of illegal opium (90 percent of global production).[20] 2006 opium production was estimated at approximately 6,100 tons, worth around US$ 3.1 billion or almost 50 percent of Afghanistan's legal GDP, whereas those of 2007 were estimated at US$ 4 billion, accounting for 53 percent of Afghanistan's GDP.[21] The Afghan economy is therefore far more dependent on the production, refinement, and export of narcotics than any other in the world, with the per capita income from narcotics exceeding official development assistance. Opium is a hardy crop that resists drought and low water availability. Drought conditions therefore instigate the farmers to increase poppy production as it represents a viable crop during such times. The majority of the share of drug revenues goes to drug traffickers and processors, with only a fifth to a quarter going to the farm level.[22]

Daily labour, Nangarhar

Since 2002, the macroeconomic environment in Afghanistan has been stable, reflecting a successful currency reform and prudent macroeconomic and fiscal policies. Inflation remains moderate (in the 10 percent to 15 percent range) with no recourse to the Central Bank to finance the deficit. The nominal exchange rate has been stable, and a long-term appreciation of the real exchange rate is driven by significant inflows of foreign exchange (through external assistance and opium exports) and increased monetization of the economy.

2.4 Human development

Since 2002, relative peace in many parts of the country and a fairly strong economic performance has been accompanied by improvements in some social indicators. In spite of these improvements however, Afghanistan remains one of the poorest countries in the world. The human development index (HDI) – a composite indicator that measures education, longevity and economic performance – is only 0.345, and Afghanistan ranks 174 out of 178 countries on the global HDI listing.[23]

Main indicators of human development are as follows:[24]

- School enrollment has grown in the past five years from approximately 800,000 in 2001 to nearly 5 million in 2005. National average attendance of children six to thirteen years of age is estimated at 37 percent.

- Higher education, critical to capacity building in both public administration and the private sector, has seen a substantial increase in the number of students, with enrollment jumping from 4,000 students in 2001 to 38,000 students in 2004.[25]

- Afghanistan's literacy rate ranks amongst the lowest in the world, with only 23.5 percent of the population 15 and older being able to read and write. This hides disparities between men and women, with an estimated 12.6 percent of women being literate compared to 32.4 percent of men.

- The rate of Afghans dying before their first birthday has fallen from 165 in 2004 to 135 per 1,000 live births, resulting in 40,000 more successful births per year. Yet, as available data indicates, the mortality rate for children under five remains the world's third highest.

- From 2001 and 2004, estimated life expectancy has increased from 45 to 47 years for men, and from 44 to 45 for women.

- On average, a maximum of 32 percent of the Afghan population have access to clean drinking water, reducing to 16 percent for the nomadic Kuchi people and rising up to 64 percent in urban areas.

Box 1 briefly summarizes some of the key dimensions of poverty in Afghanistan, drawing from the 2003 and 2005 National Risk and Vulnerability Assessments (NRVA) and the 2005 World Bank report on Poverty, Vulnerability and Social Protectin.[26]

Contributing to rural development, the Government's flagship National Solidarity Program (NSP) for community development supports small-scale reconstruction and development activities identified by locally elected Community Development Councils (CDCs) across the country. The program has facilitated the establishment of some 16,343 CDCs and financed over 22,458 community projects.[27] About 88 percent of the community projects involve infrastructure such as irrigation, rural roads, electrification, and drinking water supply.

Box1. Poverty in Afghanistan and the NRVA

Poverty has multiple dimensions. In Afghanistan, it encompasses low assets (physical, financial and human), years of insecurity and drought, indebtedness, poor infrastructure and public services, traditional roles, and other factors. As one of the approaches used to measure poverty in rural Afghanistan, the 2003 NRVA collected data on food consumption over a recall period of seven days. The data suggested that around half of the rural sample had experienced some food insecurity and the poorest segment of the sample reported food insecurity year round. In 2005, NRVA data indicated that 24 percent of the households were characterized by very poor food consumption, with a diet that consists primarily of cereal and oil and only includes dairy, roots and sugar one to three times a week. 37 percent of the households had poor food consumption, giving a total of 61 percent of households being classified as poorly nourished. Information collected on access to safe drinking water indicated that only 26 percent of households have such access in rural areas (NRVA 2005). For further, detailed information on poverty-related indicators, please refer to NRVA 2003 and 2005, and World Bank 2005.

In terms of poverty more generally, the World Bank (2005) estimates that 20 percent of rural Afghans are extremely poor, another 60 percent are vulnerable to extreme poverty, and the balance, 20 percent, are less poor, but still vulnerable to poverty.

2.5 Pressures on the environment

Of Afghanistan's 652,225 km^2, around 12.1 percent (7.9 million ha) is arable land (including a 5 percent irrigated land), 45.2 percent is under permanent pastures and 2.1 percent is forest, 37.3 percent is barren and mountainous, 0.05 percent is urban area and the remaining 3.25 percent is made of water bodies, marshlands and permanent snow cover. Shrubland, savannah and grassland comprises a fragile natural environment that has been subjected to impacts by people and their livestock for thousands of years. As a result, there are no parts of the country, apart from high alpine areas, that have not been affected by humans. The balance between precipitation and primary production is precarious and poor land management, together with conflict, insecurity, migration, drought and poverty, has left Afghanistan highly vulnerable to land degradation and desertification.

Rangelands, or grazing lands, make up the large majority of the land cover. Rangelands are grazed by herds under sedentary, seasonal trans-human and migratory management system. They are particularly susceptible to the impacts of desertification and drought, both in terms of the productivity of livestock and that of rainfed crop production. Rangelands are essential for *Kuchi* pastoralists (estimated to comprise up to 20 percent of the rural population) and for a large part of the settled population who derive their income from animal rearing and employment in the livestock industry. Over the past 30 years livestock populations in Afghanistan have

Overgrazing in Sar-Rostaq, Takhar

fluctuated from between about 4 million cattle and over 30 million sheep and goats to the lowest levels recorded in the recent history of the country (end of the drought) of 3.7 million cattle and approximately 16 million sheep and goats. It is estimated that livestock products contribute more than 50 percent of the agricultural GDP.[28] There is unanimous opinion in Afghanistan that mismanagement, especially overgrazing, and conversion to rain-fed wheat production is causing deterioration of rangelands resulting in extensive desertification and decreasing productivity.

Water is key to the health and wellbeing of Afghan people and essential to maintain agricultural productivity. However, both surface and groundwater resources have been severely affected by the drought, as well as by uncoordinated and unmanaged extraction. This is further complicated by changing climatic conditions at the global level. Available information shows that functional irrigation systems are running at about 25 percent efficiency against their potential of 40-60 percent.[29] While there has been substantial financial and technical support for rehabilitation from donors and UN agencies, it is argued that comprehensive data on the scale and the extent of successful and sustainable rehabilitation is not available. [30] It is thought that scope exists to increase the efficiency of water use in those areas currently irrigated, and to expand areas under irrigation in a sustainable manner that conserves the natural resource base and contributes to the rehabilitation of degraded areas.

Pasture, brush, and forests around the country have been severely affected by unsustainable management. Customary access to pasture, particularly in conditions of environmental degradation, poverty, post-conflict and unclear ownership, does not give pastoralists or families sufficient security of land and resource tenure and access to ensure that they will reap the benefits of any investments made. Rangelands, for example, therefore suffer from a 'Tragedy of the Commons' type situation where it is logical for livestock owners in any one season to ensure that their livestock consumes as much of the pasture as possible in as short a time as possible – if they do not do this then other herds may use the pasture land. A similar problem characterizes fuel wood harvesting and brush collection.

The rural and urban environments have also experienced a degradation in the quality of environmental services. Particularly in urban areas, the quality of drinking water and sanitation has become a matter for concern as regards public health. The quality of the air in the main urban centers has been degraded by increasing quantities of vehicle exhaust fumes, all the more polluting as most of these vehicles are old and run on poor quality fuel.

2.6 Summary

Afghanistan is essentially an agrarian country, with up to 80 percent of the population involved in farming or herding, or both. Characterized by a semi-arid and arid climate, the balance between precipitation and primary production is precarious throughout much of the country. With one of the highest population growth rates in Asia, together with returning refugees, extreme levels of poverty, ongoing conflict and low human and institutional resource capacities, Afghanistan represents one of the largest development challenges in the world today. The multiple pressures on the environment are resulting in unsustainable natural resource use and severe degradation of the natural resource base. Forest and woodlands, throughout Afghanistan are being cut down for construction, fuel wood and sale to neighboring countries, without consideration for their ecological and environmental values. Rangelands are being converted to rain-fed wheat production, exposing vast areas to wind and water erosion. Thus processes of deforestation combined with overgrazing, conversion and drought are increasing soil erosion, watershed degradation, reducing ecosystem services and biodiversity loss, threatening livelihood sources and leading to increased impoverishment of the Afghan people. While there is awareness within the government of some of the consequences of biodiversity loss and desertification, particularly in the face of ongoing climate change, the pressure for survival at the local level and economic growth at the national level in an insecure country has resulted in little substantive action being taken to address the issue. In this context, it is urgently required that action be taken to build systemic, institutional and individual capacities to address these issues.

3 Methodology

3.1 Introduction

The NCSA and NAPA processes were implemented in four main phases. These were the: (1) inception; (ii) thematic situation analysis and identification of priority activities for adapting to climate change; (iii) identification of cross-cutting capacity needs for improving compliance with the Rio Conventions; and (iv) development of the NCSA action plan. This Chapter will review each of these in turn, together with key principles that guided the NCSA and NAPA process.

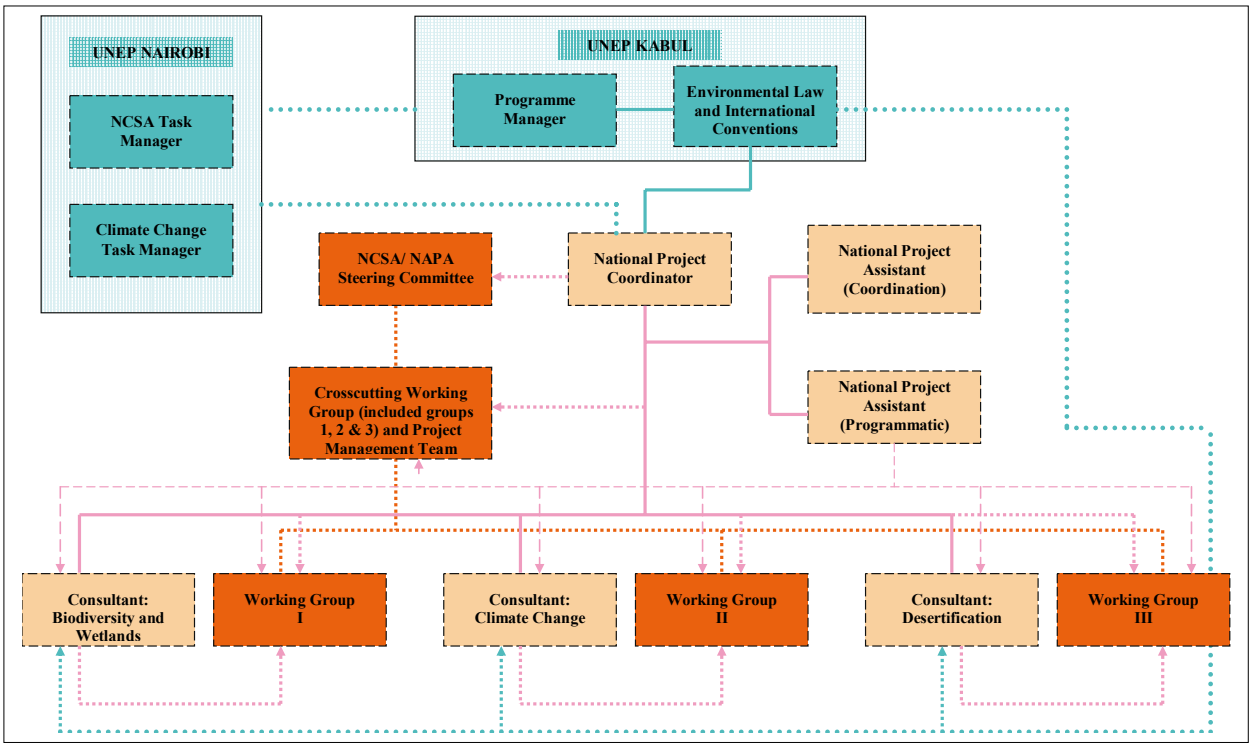
3.2 Inception phase

The Inception Phase involved the establishment of NCSA and NAPA management and implementation structures and joint operational workplans (see Figure 4). To this end, in 2005 one multi-stakeholder Steering Committee and four Working Groups (WGs) were established. The Steering Committee was responsible for overall guidance and the provision of policy support and technical expertise for the implementation of the project. The WGs were comprised of technical experts from both governmental and non-governmental institutions and they covered the topics of Desertification, Rangeland and Water Resources (DRWR-WG, nine WG members), Biodiversity and Wetlands (BW-WG, eight WG members), and Climate Change and Disaster Preparedness Working Group (CCDP-WG, twelve WG members). The final WG – the Cross-Cutting Working Group – involved the members of all three of the thematic working groups. The WGs included representatives from Government and academic institutions, the UN and national non-governmental organizations (NGOs) (Annex 1). The CCDP-WG assumed responsibility for the development of both the NCSA (related to UNFCCC) and NAPA processes (see Table 1).

Table 1. Working groups and key reports produced

WGs	Key Reports Produced
BW-WG	Biodiversity and Wetlands Working Group: Final Thematic Report. Includes thematic assessment plus capacity analysis. Biodiversity Profile of Afghanistan. Proposed Action Plan for the Conservation of Afghanistan's Biodiversity and Wetlands: 2007 – 2010.
DRWR-WG	Desertification, Rangeland and Water Resources Working Group: Final Thematic Report. Includes thematic assessment plus capacity analysis.
CCDP-WG	Climate Change and Disaster Preparedness Working Group: Final Thematic Report. Includes thematic assessment, capacity analysis, and NAPA analysis.
Cross-cutting WG	Final NCSA and NAPA Report. Includes summarized thematic assessments, cross-cutting and convention-specific capacity analysis, and NAPA analysis.

Figure 4. Management structure adopted for the NCSA and NAPA project.



NAPA and NCSA Inception Workshop, April 2005, Kabul

An inception workshop was realized in May 2005 to launch the NCSA and NAPA process. It was attended by 16 participants from 12 institutions. This workshop introduced NCSA and NAPA and provided a platform from which activities were initiated.

3.3 Thematic analysis and identification of priority activities for adapting to climate change

This phase involved the thematic situation analysis and capacity needs assessments for the three Rio Conventions. All of the WGs received technical training from national and international experts. This training covered both the contents of the Rio Conventions plus associated technical issues. Afghanistan's responsibilities under the Conventions were then analyzed in detail. Related secondary information from various reports, documents and interviews was compiled, enabling the identification of the major issues affecting implementation of the Rio Conventions in Afghanistan. Together with a detailed analysis of each of the Conventions and associated documents (e.g. Thematic Programme Networks, 2010 Targets) a list of priority actions that Afghanistan can realize in order to comply with each of the Conventions themselves, and associated capacities required to implement these, was compiled. These were discussed in detail and prioritized according to intuitive cost-impact assessments and importance in the Afghan context.

The WGs were then able to discuss each of the short-listed priority actions, associated capacity constraints, and their levels of occurrence (individual, institutional or systemic). They then proposed opportunities and interventions to address each of the constraints. A general approach to the implementation of the action, responsibilities, timeline/ benchmarks, capacity needs, funding and staffing needs, and indicators, were all identified.

Parallel to the above-detailed NCSA analysis, the CCDP-WG realized the NAPA analysis. Following a desk study thematic assessment aimed at synthesizing all currently existing information on climate change and its impacts on the Afghan people and environment, a brainstorming exercise enabled the WG members to list all climatic hazards that affect the Afghan people. These were described in terms of both their nature and their effects on: loss of life and livelihoods; human health; food security and agriculture; environmental

effects (biological diversity and forestry); and water availability, quality and accessibility.

A sensitivity matrix was then compiled that facilitated an initial assessment of the sensitivity of ecosystem services, livelihood activities and means of livelihood to each of the climatic hazards. Following the calculation of a preliminary exposure index, the results provided by the sensitivity matrix were then weighted according to two subjective factors: the extent of the physical area affected by the climatic hazard, and the importance of the effect. The sensitivity matrix thus facilitated the identification of those ecosystem services, livelihood activities and means of livelihood most exposed to the climatic hazards. Vulnerable groups in need of adaptation were identified from the sector to the household levels.

The previously mentioned processes of analysis served as a foundation for the identification of a total of 51 potential adaptation options by the CCDP-WG. These were categorized into seven broad themes: human health; water resources and renewable energy; agriculture and food security; animal husbandry, grazing and rangelands; forests and biodiversity; natural disaster preparedness and infrastructure; and capacity building. They were then screened according to the following four general criteria:

- Level or degree of adverse effects of climate change;
- Poverty reduction to enhance adaptive capacity;
- Synergy with other multilateral environmental agreements; and
- Cost effectiveness.

This resulted in the short-list of 11 activities which were again screened according to a list of 10 weighted criteria (loss of life; human health; food security; agricultural productivity; water availability, quality and accessibility; impact on vulnerable groups; essential infrastructure; cost of the project; biological diversity; and land use management and forestry), resulting in a final selection of two proposed adaptation activities. Each of these was then elaborated into a summarized project proposal by the CCDP-WG members.

Capacity building priorities were then written up in the Final Thematic Reports for each of the WGs. The CCDP-WG Final Thematic Report included both the NCSA and the NAPA analysis.

Desertification, Rangeland and Water Resources Working Group Meeting, October 2007

Climate Change and Disaster Preparedness Working Group Meeting, May 2007, Kabul

3.4 Identification of cross-cutting capacity needs among the Rio Conventions

A comparative analysis of the priority capacity needs identified in the Thematic Final Reports for each of the WGs was realized and, based on the outcomes of the analysis, it was possible to identify cross-cutting and stand alone capacity needs, constraints and interventions for compliance with the Rio Conventions. Cross-cutting capacity issues were those issues that 'cut across' or 'are common to' multiple conventions. The results of this analysis were presented to all three WGs in an intensive workshop, and feedback was used both to refine and validate the results. The identification and strengthening of synergies facilitates the achievement of more focused, integrated and cost-effective approaches to implementing the Rio Conventions at the national level.

3.5 The NAPA and NCSA action planning process

The NAPA Action Plan, consisting of two specific project proposals, was elaborated by the CCDP-WG. NCSA-related capacity building action plans were elaborated for each of the three Rio Conventions by the corresponding WGs. During an intensive three-day workshop, the three WGs combined efforts to build upon the priority cross-cutting and Convention-specific capacity needs identified in the previous phase, and prepare an overall Action Plan for their implementation.

3.6 Principles guiding NAPA and NCSA processes

Key amongst the principles guiding the NAPA and NCSA processes was the country as the driving force behind the approach adopted. The national Steering Committee and WGs were instrumental throughout the process. They were multi-disciplinary, representing various different sectors – for example, the CCDP-WG included representatives from Agriculture, Environment, Disaster Preparedness, Mines and Industry, and Energy and Water. The approach adopted was similarly multi-disciplinary, considering both scientific and social aspects, and information provided by the WG and the local people involved in the consultation process forms the foundation of this report. Given the high levels of participation and the country-driven approach adopted, the process was conducted in a highly transparent manner, with the WGs providing the bulk of the material detailed in this report.

Meeting for preparation of Action Plan for NAPA and NCSA, September 2007, Kabul

The NCSA process resulted in the identification of a series of cross-cutting and convention-specific capacity building needs that must be met in order to facilitate Afghanistan's compliance with the Rio Conventions. The NAPA process has resulted in the identification of a short-list of eleven urgent and immediate adaptation projects. Of these, two were prioritized for elaboration into project proposals. Given that both projects address multidimensional nature of poverty in rural areas, strengthening safety nets, and contributing to the ability of rural people to mitigate the impacts of climate change, they each contribute to overall sustainable development goals as articulated in the i-ANDS.

The Afghanistan NCSA and NAPA process was developed using a consultative process with participatory approaches that involved key stakeholders, including local communities. The participation of multiple stakeholders was considered vital for two main reasons. Firstly, it ensured that comprehensive information on present adaptation strategies is collected. Secondly, local people are the ones most affected by climate change and therefore the main beneficiaries of the NAPA planned priority measures. To this end, regional consultations (workshops) were undertaken at four sites: Bamiyan, Kabul, Herat and Badakhshan. These allowed for communications between the WGs and the local people. Furthermore, the process of consultation facilitated the integration of views from the very grassroots level (see regional workshop guidelines and outline in Annex 3).

The NCSA and NAPA projects represent one of the first initiatives in Afghanistan to systematically and comprehensively address compliance with the Rio Conventions. It therefore required that a substantial capacity building component accompany the process. This involved intensive training of WG members in the contents of the Convention and associated technical issues. In the case of climate change, an Iranian consultant realized the training thereby promoting south-south cooperation.

3.7 Summary

The methodology utilized for the development of the NCSA and NAPA processes was highly participatory, aiming to build national level technical, analytical and report-writing capacity. Capacity building sought to provide all WG members with a similar level of knowledge concerning both the Conventions themselves and associated technical details. The entire NCSA and NAPA processes were therefore country-led processes, and the information presented in this report reflects the analysis and discussions of the WG members.

4 Institutional and Policy Architecture for Convention Implementation

4.1 Introduction

Chapter 4 will begin by reviewing the national institutional architecture for the implementation of the Rio Conventions. Particular attention will be paid to examining the plans and strategies of the most relevant Government ministries. Governance and citizen participation in governance systems will also be considered, followed by a brief review of national research institutions and non-governmental organizations.

The Chapter will continue to examine the legal and policy frameworks that support the implementation of the Rio Conventions. Both pre-2001 and post-2001 legislation will be considered, with particular attention being paid to the Environment Law and land rights. Until fairly recently, there was no specific biodiversity, climate change or desertification mandate within the Government of the Islamic Republic of Afghanistan, although elements of the Rio Conventions have been implemented primarily by the Ministry of Agriculture, Irrigation and Livestock (MAIL).[31] MAIL has traditionally held the mandate for forestry, rangeland management, wildlife and national parks. Today, responsibility for the Rio Conventions is *de facto* shared amongst a number of institutions, the most important of which are MAIL and the National Environmental Protection Agency (NEPA).

4.2 Institutional architecture for the implementation of the Rio Conventions

Afghanistan National Development Strategy

The interim Afghanistan National Development Strategy (i-ANDS) provides the framework for the development of Government policies and guides the allocation of resources and programmes towards these goals. It was introduced in January 2006 and formally embraced by the London Conference on Afghanistan as a part of the Afghanistan Compact, the successor to the 2001 Bonn Agreement. The final ANDS, which will act as the country's interim Poverty Reduction Strategy Paper (i-PRSP), is due for release in March 2008. The strategy identifies 43 benchmarks across three pillars: - (1) security; (2) governance, rule of law, and human rights; and (3) economic and social development.

Environment is reflected twice within the ANDS framework. In its narrow sectoral sense, it is an Afghanistan Compact benchmark that falls within the ambit of the Natural Resources and Environment Working Group (WG14–3.6) of the Infrastructure and Natural Resources Consultative Group (CG3):

In line with Afghanistan's Millennium Development Goals (MDGs), environmental regulatory frameworks and management services will be established for the protection of air and water quality, waste management and pollution control, and natural resource policies will be developed and implementation started at all levels of government as well as the community level, by end-2007.[32]

In its broader sense, environment is also a cross-cutting issue which needs to be mainstreamed within Afghanistan's wider development framework. More specifically, it is recognized that environment must be mainstreamed in each programme area through the development of policy benchmarks to ensure that government, donors and implementing agencies follow established norms with respect to the incorporation of environmental considerations into the design and implementation of their activities, and provide adequate oversight and monitoring of the environmental impacts of humanitarian and development projects.

National Environmental Protection Agency (NEPA)

Until 2003, the environment itself was not independently recognized as a government mandate. It was only after the Constitutional *Loya Jirga*, or Grand Council, that environment was added to the portfolio of the former Ministry of Irrigation and Water Resources, and the institution renamed the Ministry of Irrigation, Water Resources and Environment.

In late 2004, after the Presidential elections, the Cabinet was reshuffled and the environment mandate was carved off from its previous institutional home. Known during the interim period as the Independent Department of Environment, in May

2005 the fledgling institution was renamed the National Environmental Protection Agency (NEPA), and established by presidential decree.[33] The Environment Law (Official Gazette No. 912 dated 25 January 2007) clarified the mandates, powers, responsibilities and functions of NEPA.

NEPA's role within Afghanistan's government structure is as the overall environmental regulatory, policy-making, coordination, monitoring and enforcement institution, with the line ministries responsible for actual management of environmental resources. To this end, NEPA must:

- promote the sustainable use of natural resources, and conservation and rehabilitation of the environment;
- coordinate environmental affairs in Afghanistan;
- develop national environmental policies, strategies and legislation;
- regulate and permit activities having an adverse impact on the environment, in the fields of environmental impact assessment, air and water quality management, waste management, pollution control;
- improve environmental awareness and outreach;
- gather and monitor environmental information;
- implement the international environmental conventions that Afghanistan is a Party to; and
- enforce the provisions of the Environment Law.

NEPA's goal is to: "protect the environmental integrity of Afghanistan and support sustainable development of its natural resources through the provision of effective environmental policies, regulatory frameworks and management services that are also in line with the Afghanistan MDGs".

The NEPA Strategic Plan for the period 2007 to 2012, developed as a requirement of ANDS, together with its institutional restructuring documents, serve as a basic framework around which operations and activities are currently being developed.

The priority expected results over the next five year period (2007 – 2012) are:

1. By 2012, establishment and implementation of legal and regulatory frameworks and management services for "brown" issues, including the protection of air quality, water quality, waste management, and pollution control;

CBNRM activity in Jawpalal Village, Bamyan: People benefiting from solar energy for household lighting

CBNRM activity with Community Development Council, Karnail Village, Gozara, Herat: Inauguration of new Kareze System

2. By 2012, establishment and implementation of legal and regulatory frameworks and management services for "green" issues, including natural resource management;

3. NEPA is capable of taking the lead in environmental management through the enhancement of its professional capacity;

4. Regular dissemination of a public environmental awareness campaign and provision of environmental information to other Government authorities; and

5. Achievement of Afghanistan's MDGs related to the environment.

Secondary results include:

1. Improved coordination with line ministries and other government departments;

2. Support to Government and other stakeholders through the integration of environmental issues into development policies, benchmarks and government programs; and

3. Participatory processes and public awareness contribute to compliance and enforcement.

The organizational transition of the environment function since 2002 has precluded the consistent development of technical and managerial skills within both NEPA and other governmental authorities involved in environmental management. Similarly, there has been little opportunity in Afghanistan's recent history to develop a functioning education and administrative system to support environmental management. As such, NEPA's capacity to implement its mandate remains relatively limited but the impending completion of the civil service reform process is anticipated to provide a stable organizational structure with staff hired under appropriate Terms of Reference following a transparent recruitment process.

NEPA is the lead institution for the implementation of the NCSA and NAPA processes, and the acting focal point for UNFCCC. NEPA is also the focal point for the ozone treaties (namely the Vienna Convention and Montreal Protocol, to which Afghanistan acceded in 2004). During 2008, NEPA intends to establish a climate change unit in its International Affairs Division, and develop a State of the Environment report and possibly a national environmental policy and a national environmental action plan. Parallel to these processes will be the development of the Initial National Communication (INC). The Director General of NEPA is the Operational Focal Point for GEF in Afghanistan.

Ministry of Agriculture, Irrigation and Livestock (MAIL)

MAIL has elaborated a Ten-Year Agriculture Master Plan (2007 – 2017) and associated Five-Year Implementation and Investment Program (IIP) that provides immediate direction for donors and Ministry staff to work towards the coherent and strategic implementation of its mandate. Although still in draft format, the IIP contains a total of seven sections that cover food security, livestock, natural resource management, physical infrastructure and irrigation, research and extension for market development, and capacity building.

MAIL is the National Focal Point (NFP) for UNCBD and UNCCD. In the case of UNCCD, the Technical

Deputy Minister of MAIL is supported by an Advisory Committee on Desertification and Sustainable Land Management that has been instituted to provide strategic guidance to the national action planning process. This Committee is assisted by United Nations Development Programme (UNDP)/ GEF.

A revision of the IIP reveals that all of its Sections are closely linked to improved compliance with the Rio Conventions. In continuation, a summarized description of each of the Sections is presented.[34]

- Section I of the IIP addresses the issue of food security, calling for the implementation of a National Programme for Food Security (NPFS) aimed at improving the adequacy and stability of economic and physical access to food at household level, whilst contributing to national food security. To this end, the IIP calls for action at national and provincial government levels to strengthen institutional and policy capacity, at household level to strengthen skills and productive assets of poor and food insecure households, and at the community level to rebuild community productive assets such as water supply structures, community centers and market places.

  The horticultural sub-program of Section I aims to develop the fruit and nut (perennial horticulture) industry in Afghanistan. Amongst the specific activities listed, of most interest to the Rio Conventions are those of institutional development, research and technology transfer systems, and the orchard rehabilitation and planting programme.

- Section II, integrated pest management (IPM), aims to provide for sustainable livelihoods and improved farmer well-being through management of agricultural pests. Although IPM is not in the UNCCD text, it is an integral component of sustainable agricultural practices.

- Section III covers livestock. With a total of over 30 million hectares of pasture land in Afghanistan and an estimated 13 million sheep and goats, interventions in the livestock sector are essential to preventing and mitigating desertification and the effects of drought. To this end, the IIP calls for improved livestock feed availability and management through a comprehensive assessment of productivity of existing natural pastures, followed by targeted management interventions. Although rotational

CBNRM activity in Bazargan Village, Gozara, Herat: New Plantation of fruit trees in community orchard

Use of natural resources around Amu River: Collection of medicinal plants (Licorice) for trade, Hairatan, Balkh

grazing is not specifically mentioned, fodder crop improvement involving the establishment of demonstration, seed multiplication and fodder crops are emphasized.

- Section IV addresses natural resource management, with the aim that communities and institutions throughout Afghanistan establish and maintain their natural resources, defining regimes of utilization which achieve a balance between maximization of production and productivity in all agricultural land uses and the effective maintenance and enhancement of natural resource bases. The six different components of the natural resources section of the IIP relate particularly closely to compliance with the Rio Conventions:

  Component 1 of the natural resources section, stresses the need to establish an appropriate legal and institutional framework that is conducive to sustainable natural resource management. As the IIP is being finalized, advances are being made in the development of forest, land, rangeland and protected areas legislation. It is envisioned that the implementation and enforcement mechanisms provided for in this legislation will be piloted in smaller areas (e.g. individual watersheds) and slowly scaled up through a variety of mechanisms, including community-based integrated natural resource management (CBNRM) plans supported by Community Natural Resource Management Committees (Component 2). Intensive capacity building at national, provincial, district and community levels will facilitate the implementation of the local-level CBNRM plans which will, in turn, feed into national management plans for various natural resources.

  Component 3 addresses awareness raising, aiming to increase knowledge about the importance of sustainable natural resource management, thereby motivating natural resource use in a manner that achieves a balance between maximization of production, productivity and effective maintenance and enhancement of the natural resource base.

  Monitoring and evaluation of the status of natural resources (Component 4) involves the development of a baseline assessment and continuous monitoring. Collection of data as part of this process encompasses participatory discussions, inventories, landcover surveys, and establishment of a central database and a national herbarium and botanical gardens.

Authorities from the local to the national levels will facilitate the protection of natural resources and enhancement of the natural resource base (Component 5) through, for example, the provision of infrastructure and capacity building opportunities.

Finally, Component 6 addresses issues relating to the generation of income from the sustainable harvest and commercialization of natural resource products. In the case of Afghanistan, this would cover important resources such as the natural wild pistachio (*Pistacia vera*), wild olive (*Olea cuspidate*), devil's dung (*Ferula asa-foetida*), licorice (*Glycyrrhiza glabra*), pine nuts (*Pinus gerardiana*), and so on.

- Section V covers water availability and use efficiency. The IIP estimates that over 80 percent of agricultural products are grown on irrigated land, however only about 30 percent of Afghanistan's water resources are used for irrigation, with poor levels of efficiency (25-30 percent). To address this issue, the physical infrastructure and irrigation component of the IIP will work on 17 programmes that can be summarized as follows: increase water availability and use efficiency, improve water allocation, rehabilitate and construct irrigation infrastructure and water storage facilities, establish flood/ drought measures, establish and strengthen institutions, build capacities, apply appropriate technology adaptive research and knowledge, improve regulation and enforcement, empower communities, improve systems of coordination, and establish emergency measures.

- Section VI involves research and extension for market development, focusing on improving farmer's practice and use of appropriate technologies to achieve higher farm productivity, food security and farm income. To this extent, the objective is to move towards nationwide coverage of the extension service in a manner that is cost-effective and in line with the Government strategy and farmers' needs.

- Section VII covers the development of institutional and human capacity for sustained growth with four key objectives that encompass the establishment and development of institutions, increased capacity of Government personnel, the establishment of an inter- and intra-ministerial information management system, and the development of modalities for inter- and intra-ministerial collaboration and coordination.

Following the approval of the IIP, intensive capacity building and technical support is required in order to facilitate the socialization and internalization of the IIP from the national to the local levels. Assistance to the process of implementing the IIP is required, including management of financial resources and technical assistance from donors and the Ministry of Finance in a manner that aligns with the strategy and priorities detailed in the IIP. Linked to the IIP and its implementation will be the development of the National Biodiversity Strategy and Action Plan (NBSAP) and the NAP, provided that funding for these activities is received from GEF.

ANDMA

The Afghanistan National Disaster Management Authority (ANDMA) was initially established in 1971 as the Office of Disaster Preparedness (ODP) by the Government of Afghanistan as a coordination office, mandated to support a multi-sectoral National Commission and with support from the United Nations Disaster Response Office (UNDRO). The establishment of this office followed an avalanche that killed 360 people and displaced hundreds of families. The National Commission has never actually met and, as such, ANDMA has historically assumed the role of focal point for all disaster management activities.

Since its establishment 37 years ago, ANDMA has undergone several re-locations within the Afghan government, in the Ministry of Planning, in the Afghan Red Crescent, and within the Cabinet. Between 1980 and 1998, ANDMA was a member of the cabinet, enjoying ministerial status, and reporting directly to the Prime Minister of Afghanistan. In 1998, the Taliban regime re-located ANDMA to the State Office of General Administrative Affairs, with a substantially reduced authority and scope of intervention. Subsequently, given increased attention of the President to disaster management, ANDMA has been upgraded to ministerial level by official decree and an independent budget has been allocated.

Minibus in water: flood in Daikundi

ANDMA has the mandate to coordinate and manage all aspects of emergency response (including mitigation and preparedness) that relate to natural disasters. This includes those aspects of post-disaster recovery and development that fall within the national disaster management policy and plan. In all cases, ANDMA coordinates its activities closely with relevant line ministries. At the same time, considerable capacity strengthening is required for both ANDMA and line ministries for them to effectively implement their mandate.

The ANDMA strategic plan outlines the systems in place for disaster preparedness and, once a disaster occurs, it guides ANDMA on decisions to be made, directions to be issued, and appropriate coordination mechanisms. As per the disaster cycle, the activities to be carried out by the ANDMA have been organized in four stages:

1. During Non-Disaster Situation (Mitigation & Preparedness);
2. Before a Likely Disaster (Preparedness & Warning Dissemination);
3. During Disaster (Declaration, Immediate Response, Search & Rescue); and
4. After Disaster (Recovery & Rehabilitation).

Other central Government institutions

Other central Government institutions with a role to play in addressing climate change, desertification and biodiversity include the following:

- Ministry of Rural Rehabilitation and Development (MRRD)
- Ministry of Energy and Water (MEW)
- Ministry of Information and Culture (MIC)
- Ministry of Education (MoE)
- Ministry of Higher Education (MHE)
- Ministry of Mines and Industry (MMI)
- Ministry of Frontiers and Tribal Affairs (MFTA)
- Central Statistics Office (CSO)
- Department of Meteorology, Ministry of Transportation (MoT)
- Ministry of Health (MoH)
- Afghan Tourism Organization (ATO)

At national and provincial levels, it is necessary to promote closer and more effective coordination between NEPA and MAIL, and between these institutions and other Government institutions that have a role to play in compliance with the Rio Conventions. Coordinating mechanisms such as the Committee for Environmental Coordination, legally established under the Environment Law in 2006, serve as an important mechanism in this respect.

Governance and citizen participation

The Constitution of Afghanistan envisions a three-tiered government. At the provincial and district levels, governance is executed by Provincial Councils and District and Village Councils respectively. The former were elected during the parliamentary elections held in September 2005. The election of the latter has yet to happen, and is unlikely to occur in the immediate future due to disputes relating to district demarcation. It is unclear what the relationship between these provincial and local levels of government and the central level of government will be. However, given Afghanistan's tradition of centralized governance, it is unlikely that meaningful executive power will devolve beyond the provincial level of central government. The Government's sphere of influence remains highly centralized and geographically limited, largely because of the volatile security situation and the continued absence of rule of law in many areas of the country. In that effective management of natural resources requires devolution of power to subnational levels of government and community level institutions, this institutional reality will hamper compliance with the Rio Conventions.

Through the NSP, the Government has facilitated a process of institutional strengthening at the very local level where a system of CDCs has been established across large areas of Afghanistan. These Councils

are elected in a participatory manner and therefore aim to represent the inhabitants of a village or 'community'. Optimally they will serve to re-structure and re-align meaningful traditional power structures that already exist in Afghan communities so as to further strengthen their contributions towards the re-establishment of a sustainable state.[35] At the local level, CDCs provide a potentially useful institutional framework for implementing and building capacity to realize sustainable natural resource management activities.

Research institutions and national NGOs

There are four universities in Kabul (Medical, Kabul University, Polytechnic, and Education) and nine regional universities (Nangarhar, Khost, Kandahar, Herat, Bamiyan, Mazar, Takhar, Badakhshan and Kapisa). They have a potentially critical role to play with respect to training and research in issues related to the Rio Conventions. Again, capacities require strengthening through consistent and sustained support from international researchers, as well as further training for Afghan professors outside the country. Current courses on offer in Afghan Universities provide Bachelor level training and demand greatly exceeds capacity. Support is needed to improve both the range, quality and capacity of ongoing courses, and to expand current portfolios to ensure the inclusion of Masters and research programs. This would include the integration of climate change, which is not presently covered in any great detail in the curriculum.

Afghanistan has a general lack of functioning national civil society organizations that address environmental issues. The only relevant national level non-governmental organization addressing environmental issues is Save the Environment Afghanistan (SEA).

Activities of international organizations working areas related to the Rio Conventions are detailed in the following Chapter.

4.3 Legal and policy frameworks supporting compliance with the Rio Conventions

Overview

Afghanistan is an Islamic republic, governed by *Shari'a* law. For the most part, *Shari'a* complements the modern principles of environmental management. For example, the notion of sustainable development is consistent with the principle of *khilafah* (environmental stewardship) contained in the *Qur'an*.

Afghanistan's current hierarchy of statutory laws, which as a body of law is subordinate to *Shari'a*,[36] sees the Constitution at the apex, subordinate to which is primary legislation (for example, the Environment Law), under which falls subordinate legislation (for example, the Protected Areas Regulations). Customary law, which is often applied in regard to access to and use of land and the natural resources on it, is found at the bottom of the hierarchy; in other words, its application is lawful only in so far as it does not conflict with *Shari'a* or statutory law.

Although a few fragmented and outdated laws exist, there is no overall regulatory framework specifically addressing climate change, biodiversity conservation or desertification, although other natural resource and related legislation is relevant, including the Environment Law, draft Forest Law, draft Rangeland Law, draft Water Law, Environmental Impact Assessment (EIA) Regulations, Ozone Regulations, draft Protected Area Regulations, and related policies and strategies. Together these address, to a greater or lesser extent, a number of the issues relevant to and covered in the Rio Conventions.

Pre-2001 legislation

Pre-2001 legislation related to climate change, desertification, biodiversity and associated issues, is generally outdated and inconsistent, and fails to reflect modern principles of environmental management. The relevant laws that may remain in force[37] include:

- Forestry Law of the Islamic Emirate of Afghanistan, 2000;
- Islamic Emirate of Afghanistan Law for Land Ownership, 2000;
- Hunting and Wildlife Protection Law, 2000;
- Range Management Law, 1970/ 2000;[38] and
- Islamic Emirate of Afghanistan Law for Land Ownership, 2000.

As indicated below, the Government of the Islamic Republic of Afghanistan intends to repeal all of these pieces of legislation in due course.

Post-2001 legislation

The post-conflict spectrum of promulgated Rio Convention relevant legislation includes:

- Constitution of the Islamic Republic of Afghanistan, 2003;
- Decree on the prohibition of hunting, 2005;
- Ozone Regulations, 2006;
- Environment Law, 2007;
- Water Law, 2008; and
- EIA Regulations, 2008.

Relevant legislation still in the legislative pipeline and not yet promulgated includes the Forest Law, Rangeland Law and Protected Areas Regulations.

The Constitution does not grant citizens an environmental right *per se*, but rather imposes a corollary duty on the State to adopt necessary measures for safeguarding forests and the environment.[39] One of the measures adopted by the State in fulfillment of this obligation was the development and promulgation of the Environment Law,[40] which came into force on 18 December 2005, and which contains the broad principles of management of the country's environmental resources and problems, based on the notion of sustainable use and development and balancing the development needs of the Afghan people against the country's ecological needs. These principles are the overarching regulatory framework for climate change. The Environment Law repeals the Nature Protection Act of 1986/2000. The 2005 version of the Environment Law was then considered and amended by the newly-formed National Assembly, and the final version of the law was passed in early 2007.[41]

A brief summary of relevant Sections of the Environment Law that relate to Rio Convention implementation are set out below.

- *Article 5: Fundamental principles*
  Many of the listed principles, which apply to all aspects of environmental management, are relevant to the Rio Conventions, including the polluter pays principle, the principle of intergenerational equity, the principle of sustainable development, and the preventative principle.

- *Chapter 3: Management of activities affecting the environment*
  Chapter 3 encompasses EIA. The associated policy and EIA regulations have now been issued.

- *Chapter 4: Integrated pollution control*
  The chapter on pollution control is important in that it introduces regulatory mechanisms to monitor and control point source emissions that contribute to climate change and resource degradation problems.

- *Chapter 5: Management of water resources*
  The Law emphasizes the importance of integrated watershed management; the regulation groundwater and surface water use; measures to protect human health, wetlands and important ecosystems; and any other provisions necessary for the sustainable use and management of water resources.

- *Chapter 6: Protected areas management*
  Chapter 6 contains provisions that address the national protected areas system, planning, categories of protected areas, habitats of protected species, designating protected areas, declassifying protected areas, and so on.

  During the 1970s a number of sites, some of which were former Royal hunting grounds, were declared protected areas including a national park (Band-e-Amir), three waterfowl sanctuaries (Dasht-e-Nawar, Ab-e-Estada and Kol-e-Hashmat Khan) and two wildlife reserves (Ajar Valley and Pamir-e-Buzurg). However, overall enabling legislation providing for the establishment and management of protected areas has never existed and most of the declarations were not published in the Official Gazette, so the precise legal status of these protected areas is uncertain, but in all likelihood void. In view of this uncertainty, the Environment Law provides that any protected area that existed prior to the promulgation of the Law must be re-designated in terms of the Law.[42]

  The Government of the Islamic Republic of Afghanistan is in the process of developing Protected Area Regulations, which are currently with the Ministry of Justice for processing, after which they will be presented to the Council of Ministers for approval.

View on Band-e-Amir, Bamyan: The Afghan Government decided to recognize Band-e Amir as the first Protected Area of the Islamic Republic of Afghanistan

- *Chapter 6: Management of natural resources outside of protected areas*
  The Law contains a number of provisions relating to natural resources outside protected areas. These refer to the restoration of indigenous vegetation, rangeland management and sustainable use, conservation of species and access to genetic resources.

  Sectoral community based forestry and rangeland management legislation is being developed by MAIL (namely the Forest Law and the Rangeland Law). These laws will repeal existing forestry and rangeland laws.

  Sustainable use and conservation of species encompasses planning, listing of species, taking of harvestable species, taking of protected species, recovery plans, alien species and living modified organisms, re-introduction of indigenous species, ex-situ conservation of species. Due to capacity and resource restrictions, it will be some time before these provisions can be effectively implemented.

  It should also be noted that in 2005, the President of Afghanistan issued a decree banning hunting in any form for a period of 5 years.[43] The ability of the Government to effectively enforce this ban is, however, limited. Wildlife and Hunting Regulations, which will repeal the Hunting and Wildlife Protection Law referred to above, are also in the early stages of development.

  The trade in species (international trade, import, export, domestic possession and trade) will involve, amongst other actions, the implementation of the Convention on the International Trade of Endangered Species of Flora and Fauna (CITES). However, due to lack of funding and training of the Scientific and Administrative Authorities (neither of which as of yet have been appointed, although MAIL is the CITES focal point Ministry) and customs officers, it will be a challenge to adequately and effectively enforce the regulations.

  With respect to access to genetic resources (scope, permitting requirements, application for access, consent to access, access permit, certificate of origin), Afghanistan is not yet a Party to the Cartagena Protocol. Nonetheless, some of its provisions, most notably those relating to benefit sharing, have been incorporated into the Law. Given that Afghanistan's biological resources are not as diverse as those of many

countries found closer to the equator, the country is less vulnerable to the activities of bioprospectors. However, this situation may change once the security situation improves and the medicinal and related values of certain species are catalogued.

- *Chapter 7: Environmental Information, Education and Training, and Research*
  The Environment Law divides responsibilities for various aspects of land and biodiversity management both within and outside protected areas between NEPA and MAIL. NEPA is responsible for the more overarching policy and regulatory aspects (such as environmental impact assessments), while MAIL is responsible for field-level management.

  A list of relevant functions specified in the Environment Law is detailed in Table 2. Beside this, an indication is given of which institution is legally responsible for that specific function.

Given the division of environmental responsibilities between the two institutions, they will be required to work together closely and effectively in order to fulfill their mandate with relation to desertification. Aspects of natural resource management not outlined above (especially in relation to forest and rangeland management) remain vested in MAIL.

Table 2. List of relevant functions specified in Environment Law, plus division of responsibilities between NEPA and MAIL

Function	NEPA	MAIL	Both
Management of activities affecting the environment			■
• Preliminary assessment of projects, plans, policies or activities	■		
• Comprehensive mitigation plan	■		
• Integrating environmental issues into development planning			■
Environmental considerations relevant to water resource conservation and management			■
Biodiversity and natural resource conservation and management			■
• National biodiversity strategy			■
• Protected area establishment and management		■	
• National protected areas plan	■		
• Management plans for each protected area	■		
• Guidelines for management of each category of protected area	■		
• Designation of protected areas	■		
• Declassification of protected areas	■		
• Management of each protected area		■	
• Enforcement in each protected area		■	
Management of resources outside protected areas			■
• Restoration of indigenous vegetation		■	
• Rangeland management		■	
Sustainable use and conservation of species			■
• Preparation of lists of harvestable and protected species	■		
• Permitting of taking of such species	■		
• Development of recovery plans	■		
• Permitting functions - alien species and living modified organisms			■
• Permitting functions – CITES	■		
• Implementation of CITES		■	
• Domestic possession and trade of CITES species		■	
Access to genetic resources	■		
• Permitting requirements	■		
Environmental information, education and training, and research			■

Land and resource property rights

Land and resource property rights and tenure in Afghanistan are not clear. Successive Governments have overlain new land policies and legislation over previous ones, blurring the lines between private, common and state land, and giving rise to the possibility of multiple and conflicting entitlements. These frequent legislative changes, together with partial implementation, a general lack of respect for rule of law in rural areas, intermittent conflict, displacement and drought have all exacerbated the situation. The ineffectiveness of land administration mechanisms and the large-scale destruction of archives and documents during the period of conflict mean that there is currently no comprehensive record of land ownership or even an overarching inventory of all lands, public and private. Acting as multipliers in this confused situation are rapid population growth and associated dynamics of land fragmentation, opium poppy cultivation, and chronic instability and insecurity in many parts of the country.[44] This situation has numerous negative implications for sustainable natural resource management. Common property natural resources such as rangelands and forests are frequently subjected to a 'Tragedy of the Commons' type situation, where unclear ownership and use rights generate incentives that stimulate unsustainable exploitation, leading to degradation of the resource and associated biodiversity.

A draft land policy is currently under discussion at the national level. It envisions the maximization of social and economic benefits to the whole of Afghan society based upon the orderly and sustainable use of land resources. The policy intends to guide the legal drafting and enactment of new or amended land laws. Of particular importance to the Rio Conventions, and addressed by the draft land policy, are issues of insecurity of tenure in rural areas, distribution and acquisition of land, duality of land tenure and land management, regulation of pasture land, land use, and environmental sustainability. The slow resolution of these issues will contribute towards its sustainable management.

4.4 Summary

The capacity of Government institutions in Afghanistan to comply with the Rio Conventions is low by international standards, and available resources are very limited. This can be partially attributed to the relative youth of the national Government following three decades of conflict and the associated lack of continuity in governance and institutional structures. At the same time, Afghanistan remains one of the poorest countries in the world and both donor and national budgets are orientated towards meeting health, education, infrastructure and institutional needs, while environment is frequently viewed as a lesser priority. Organizations implementing projects that work on related issues have identified these weaknesses and are taking steps to address them, although capacity building is by its very nature a slow and ongoing exercise.

Trainers Workshop on the Forest Law in November 2006 by the Ministry of Agriculture, Irrigation and Livestock and UNEP

5 Stocktaking: activities realized in Afghanistan that improve compliance with the Rio Conventions

5.1 Introduction

This Chapter presents a stocktaking of the activities realized in Afghanistan that improve Afghanistan's compliance with the Rio Conventions. Enabling activities are reviewed in brief, beginning with the cross-cutting NCSA and NAPA processes and continuing to review those activities specific to each of the three Conventions. Ongoing and recently concluded key donor-funded projects that are being implemented with support from the Afghan Government are then summarized. The Chapter concludes with a brief analysis of strengths and constraints facing the implementation of the Rio Conventions in Afghanistan.

5.2 Enabling activities

NCSA and NAPA

NCSA and NAPA project documents were signed in the third quarter of 2004. The two projects were designed in such a way that their implementation is being conducted jointly in Afghanistan. Both projects are executed by NEPA with assistance from UNEP's *Institution and Capacity Building Programme for Environmental Management in Afghanistan*. Since 2005, the implementation of the NCSA and NAPA processes has involved the establishment of a Steering Committee and four WGs; capacity building in the contents of the Conventions and associated technical issues; participatory analysis of capacity strengths and weaknesses, identification of capacity building needs, detailed analysis of climatic hazards and vulnerable groups, and identification of two adaptation project profiles; followed by the elaboration of this final NCSA and NAPA report. The NCSA and NAPA processes and results are described in detail in this document and so will not be covered further in this Section.

UNFCCC

A number of advances have been made by Afghanistan to work towards compliance with the UNFCCC since its ratification in 2002:

- Afghanistan has participated in Subsidiary Bodies meetings, Intergovernmental Panel on Climate Change (IPCC) workshops and the COP of UNFCCC.
- In 2006, the Government of Afghanistan received through UNEP the amount of $15,000 for the purposes of undertaking a stocktaking and stakeholder consultation exercise towards the development of the proposal for funding of the Initial National Communication (INC). The objective of the exercise was to identify climate change related activities being implemented or completed, as well as needs and gaps that could be addressed within the framework of preparing the first national communications under the UNFCCC.
- In 2007, the Government of Afghanistan submitted to the GEF via UNEP-GEF its proposal for funding in the amount of US$ 405,000 for the project *Enabling Activities for the Preparation of the Islamic Republic of Afghanistan's Initial National Communication under the UN Framework Convention on Climate Change*. The main objective of this proposal is to enable Afghanistan to fulfill its commitments and obligations as required by Articles 4.1 and 12.1 of the Convention by preparing and reporting its INC based on the recommended guidelines adopted at COP 8 (decision 17/CP.8) in 2002, and the format recommended by the Operational Procedures for the Expedited Financing of National Communications from non-Annex I Parties provided by the GEF in 2003. Through the process, Afghanistan, as a least-developed country, will build its institutional, scientific, technical, informational and human capacity at all levels as highlighted in Decision 2/CP.7 of the COP 7, so as to facilitate the country's effective implementation of the Convention in a sustainable manner. The proposal consists of the following components:
  - Project Initiation Including the Establishment of the Project Coordination Committee (PCC), National Climate Change Committee (NCCC) and Project Steering committee (PSC) and National Study Team;
  - National Circumstances;
  - National GHG Inventory;

- Programmes Containing Measures to Facilitate an Adequate Adaptation to Climate Change;
- Programmes Containing Measures to Mitigate Climate Change;
- Development and Transfer of Environmentally Sound Technologies (ESTs);
- Research and Systematic Observation;
- Education, Training and Public Awareness;
- Integration of Climate Change Concerns into Sustainable Development Plans and Programmes;
- Information and Networking;
- Capacity-Building;
- Constraints and Gaps; and
- Preparation and presentation of the INC.

- UNDP has assisted the Afghan Government to elaborate a *Framework for Developing Clean Development Mechanism (CDM) and other Carbon Finance Activities in Afghanistan* (2008). During the course of the study, three potential CDM sectors were examined: 1) forestry and land use change, 2) generation and use of renewable energy, and 3) the capture of fugitive gases from fossil fuel mines. The report concludes that Afghanistan has the potential to attract significant revenues through the CDM and other carbon finance market mechanisms in a number of immediate sectors with the potential for adding other sectors with time. There are risks, however, that delays in acceding to the Kyoto Protocol or in establishing the Designated National Authority (DNA) may lose for the country the momentum it needs to participate in the CDM market, particularly during the first commitment period which ends in 2012. The 'CDM Framework' that would allow Afghanistan to participate directly in the CDM must include the following steps: accession to the Kyoto Protocol, establishment of national DNA and its capacity building, increased awareness and capacity development among potential developers of CDM projects, and development of pipeline of Project Idea Notes and Project Design Documents.

Climate change is a sustainable development issue that links to all socio-economic and environmental sectors. Afghanistan has undertaken a few activities relating to other MEAs, as follows:

- Institutional Strengthening Project for the Establishment of National Ozone Unit Phase-out of chlorofluorocarbons (CFCs) under the Montreal Protocol (Montreal Protocol Multilateral Fund: US$200,000 through UNEP; project duration: October 2004 - September 2008).

- Development of a Refrigerant Management Plan (RMP), which was approved by the Executive Committee of the Multilateral Fund in April 2005. The RMP is composed of three components: (a) *Preparation on ozone regulations for control of Ozone Depleting Substances (ODS)*, which aims to provide support to the Government in the development of relevant ODS regulations to facilitate ODS phase-out, including licensing system, quota system, registration system and bans, which will supplement the existing controls on imports and exports; (b) *Monitoring of implementation of RMP activities*, which aims to monitor and supervise the activities for ODS phase-out in the refrigeration and air conditioning sector; and (c) *Establishing Conversion Practice of Domestic Refrigerators*, which aims to provide technical assistance and inputs to the refrigeration service technicians to achieve reduction in the consumption of CFC-12 in domestic refrigerators through retrofitting the equipment by using hydrocarbon blends or HFCs. The first two components will be implemented through UNEP, while the last component will be implemented by United Nations Industrial Development Organization (UNIDO) through GTZ.

UNCBD

In April 2006, the Government of Afghanistan submitted to GEF through UNEP its proposal for funding in the amount of $395,000 for two biodiversity enabling activities, namely:

- the development of Afghanistan's National Biodiversity Strategy and Action Plan (NBSAP), which incorporates the decisions and work programmes of the COP of the UNCBD; and

- the development of Afghanistan's First and Second National Reports for submission to the Secretariat of the UNCBD, through a process of national consultation.

The goal of these enabling activities is to enable Afghanistan to better meet its immediate obligations under the UNCBD, especially in relation to Article 6: General Measures for Conservation and Sustainable Use and Article 26: Reports. UNEP has been actively pursuing a response from GEF to the Government of the Islamic Republic of Afghanistan's proposal, but none has been forthcoming to date.

In June 2006, the Government submitted a second proposal for funding to GEF. The proposal was in the amount of $20,000 which is required for the purpose of preparing Afghanistan's Third National Report on Biological Diversity.[45] This report was prepared by the Government, with the assistance of UNEP, and was submitted to and accepted by the Secretariat in April 2007. Application for funding for preparation of the Fourth National Report has been prepared and submitted, and a funding decision from GEF remains outstanding.

UNCCD

To overcome the severe threat that desertification poses to Afghanistan, the Government of the Islamic Republic of Afghanistan has worked with the international community to address this issue and advance a number of activities that improve compliance with UNCCD.

As mentioned previously, the Deputy Minister of MAIL has been appointed as the NFP for implementing initiatives under UNCCD.

As part of UNDP's capacity building and sensitization for the Government on Sustainable Land Management, support has been provided for MAIL to prepare the 3rd National Report (3NR) on Desertification for submission to UNCCD. The report was completed in July 2006, and is available on http://www.unccd.int/. It is the first National Report that Afghanistan completed since its ratification of UNCCD in 1995 (1st and 2nd National Reports have not yet been prepared). Following the completion of 3NR, UNDP also supported MAIL's participation in the Regional Report Synthesis Workshop (August 2006, Bangkok), UNCCD COP 8 (September 2007, Madrid), and various other international workshops, seminars and meetings.

Wetland of Hamoon-e-Puzak, Nimroz: Impact of drought

Hamoon-e-Puzak, Nimroz: Crevasses in wetland

UNDP has also been supporting the Government, in particular MAIL and NEPA, in preparation of the Medium Size Project (MSP) proposal on Sustainable Land Management (SLM).[46] The project document has been submitted for the consideration of GEF. This project is part of the UNDP/GEF global programme: "LDC and SIDS Targeted Portfolio Approach for Capacity Development and Mainstreaming of Sustainable Land Management". The broad objective of the project is to develop a framework for enabling SLM while ensuring broad-based political and participatory support for the process. The proposed project consists of the following outcomes: 1) SLM mainstreamed into national policies, plans and legislation; 2) Human resources and institutional capacities needed for SLM developed; 3) Capacities for knowledge management in SLM developed; 4) NAP completed; and 5) Investment planning and resource mobilisation for the implementation of SLM. As of December 2007, the proposal has been technically cleared, and it awaits the final stage of approval from the GEF side. Upon completion of the review and approval process, the SLM project is expected to start in 2009. A Project Management Unit is to be established within MAIL to implement this project.

The NAP will be cross cutting in nature and will link with sustainable rural livelihoods, poverty reduction mechanisms and quality of life issues. The SLM MSP also aims to deliver capacity building and institutional strengthening to support the policy, planning and implementation process for SLM by its "mainstreaming" across relevant ministries/ agencies and national/ provincial authorities. Based on the expected success of building capacity through this MSP, together with articulation of needs in the NAP, a Full Sized Project (FSP) will be developed as a second phase of the NAP program, from 2008 onward.

5.3 Key donor-funded projects implemented with support from the Afghan Government

A range of donor-funded projects are being implemented in Afghanistan that contribute, either directly or indirectly, to Afghanistan's compliance with the Rio Conventions. These are summarized as follows (for full details see Annex 4):

- UNEP: capacity building and institutional development program for environmental management;
- ADB: initial inventory of Afghanistan's greenhouse gases;
- Pastoral Engagement, Adaptation and Capacity Enhancement (PEACE) Project: aims to reduce the social and economic risks associated with livestock production in Afghanistan;
- Agro Meteorological Project in Afghanistan (AgroMet) provides climatic information, validation of satellite monitoring and ground truth crop forecasts;
- World Food Programme (WFP): National Risk and Vulnerability Assessment (NRVA) of Afghanistan, collects information at community and household levels to better understand livelihoods of rural settled populations and nomadic pastoralists (Kuchi) throughout the country, and to determine the types of risks and vulnerabilities that they face throughout the year.
- Famine Early Warning Systems Network (FEWS Net): aims to strengthen the abilities of foreign countries and regional organizations to manage risk of food insecurity through the provision of timely and analytical early warning and vulnerability information.
- Catholic Relief Services (CRS) has initiated a sustainable land management program that aims at combining bio-physical watershed restoration activities with support for income generation and the provision of agricultural services.
- ECODIT: Biodiversity Support Program for NEPA (BSP/NEPA) supports the building of institutional capital (human, financial and technical resources) for improved capacity to coordinate and monitor environmental management in Afghanistan.
- ADB: Rural Land Administration Project (RLAP) has concentrated on trialing new methodologies for community administration of rural land records, supporting the preparation of a comprehensive land policy, and developing recommendations for reform of relevant government institutions.
- Wildlife Conservation Society (WCS) is implementing conservation activities in three geographical areas: the Wakhan Corridor, the Hazajarat Plateau, and the Eastern Forest complex.
- Afghan Conservation Corps (ACC) aims to generate long-term improvements in the livelihoods of the Afghan people through sustainable natural resource management, biodiversity conservation and environmental rehabilitation.
- International Centre for Integrated Mountain Development (ICIMOD) has established a Biodiversity and Community Forestry Programme in Afghanistan that aims to strengthen the natural resource management sector by providing increased access to institutional and policy innovations from the Hindu Kush Himalayan region.
- Green Afghanistan Initiative (GAIN), administered by WFP, is a joint programme of the United Nations that aims to increase natural vegetation and forest cover, provide alternative sustainable livelihoods, increase environmental awareness through education, and build capacity at institutional and community levels.
- The Food and Agricultural Organization (FAO) of the UN supports the rehabilitation and development of the agriculture and natural resource sector and assists the country towards becoming food secure and self-reliant.

5.4 Summary of strengths and constraints for complying with the Rio Conventions

Strengths and constraints for addressing the requirements of the Rio Conventions are summarized in Table 3, Table 4 and Table 5 where the challenges that exist in full compliance with the three Conventions are very evident. A summary of activities undertaken that represent moves towards compliance with the Rio Conventions are presented in Annex 5.

Table 3. Summarized analysis of strengths and constraints facing Afghanistan in meeting obligations under the UNFCCC

Articles	Strengths	Weaknesses
Article 4 (a) Develop, update & publish national inventories of anthropogenic emissions of all greenhouse gasses	– Preliminary greenhouse gas inventory realized in 2007 with support from ADB – Proposal for the development of the INC has been approved	– Inventory has not yet been submitted to the Parliament of Afghanistan for approval
Article 4 (b) Formulate, implement, publish & update national programs containing measures to mitigate climate change by addressing anthropogenic emissions		– INC not yet elaborated – Low human resource capacity – National Climate Change Committee not yet established
Article 4 (c) Development, application, diffusion, and transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases	– Draft pollution control policy encourages use of clean technology – EIA Regulations promulgated	– National Climate Change Committee, which would serve as the point institution for such initiatives, has not yet been established – Low human resource capacity – Poor coordination of institutions in relation to cross-cutting problems (such as air pollution, in Afghanistan largely caused by greenhouse gas vehicle emissions)
Article 4 (d) Sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases	– MAIL 5-year Master Plan and associated IIP address forest, rangeland, water and soil management – GAIN being implemented – NGO community based forestry projects being implemented e.g. by Madera and DACAAR	– IIP still in draft format – Low human resource capacity for the design, preparation and implementation of these activities – Activities are not specifically linked to mitigating the impacts of climate change – Adaptation to climate change not considered in national or sector specific development plans – Low levels of awareness amongst policy and decision makers concerning climate change – Carbon sequestration not an explicit consideration in IIP
Article 4 (e) Preparing for adaptation to the impacts of climate change; develop and elaborate integrated plans for water resources and agriculture, and for the protection and rehabilitation of areas affected by drought, desertification, and floods	– Water resource management addressed in mandates of NEPA, MAIL and MEW – Rehabilitation of areas affected by drought, desertification and floods is addressed in the mandate of MAIL – ANDMA has been established under the Presidency	
Article 4 (f) Take climate change considerations into account in their relevant social, economic and environmental policies and actions	– Public awareness with respect to environmental issues is specifically mentioned in the Environment Law and falls under the mandate of NEPA – Climate change considerations will be integrated into the national environmental policy	– Low levels of knowledge concerning climate change and its potential impacts, both amongst technical persons and policy/ decision makers – Climate change considerations are not specifically addressed in the IIP
Article 4 (g) Research, systematic observation and development of data archives related to the climate system and intended to further the understanding of climate change and the economic and social consequences of various response strategies	– PEACE Project is reviewing and analyzing historical data on climate change – System of meteorological stations is currently collecting climate information – Famine early warning systems network (FEWS Net) has been established in MRRD – Network of Universities exists in major urban centers around the country – FAO and AgroMet are working together with the Government to enhance national climatological, meteorological and hydrological capabilities	– There is no national framework, strategy or plan for research into climate change – Lack of capacities to develop a baseline and then monitor the effects of climate change over time – With the exception of PEACE Project, information being collected is not being analyzed to inform on the impacts of climate change or to provide information to relevant decision / policy makers – Universities lack the resources, capacity and support to develop research programmes

Table 3 (cont.). Summarized analysis of strengths and constraints facing Afghanistan in meeting obligations under the UNFCCC

Articles	Strengths	Weaknesses
Article 4 (h) Promote exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies	– International organizations are building capacity of national bodies – Use of an Iranian climate change consultant, thereby promoting south-south cooperation	– The number of international organizations working on climate change related issues are low – National Climate Change Committee not yet established and therefore a focal body for this activity does not exist – Low levels of knowledge concerning climate change and its potential impacts – Climate change is currently not considered a national priority and therefore is being little addressed – Training, education and public awareness raising activities with respect to climate change are extremely limited
Article 4 (i) Promote and cooperate in education, training and public awareness related to climate change	– NCSA and NAPA processes being implemented which has resulted in training and increased capacity of WG members as well as exposure to international standards and activities through workshops organized in support of these processes – NGOs are keen to expand their activities to these areas	
Article 4 (j) Communicate to the Conference of the Parties information related to implementation, in accordance with Article 12	– UNEP local office supports NEPA to do this on an ad hoc basis – Participation in COPs	– INC not yet elaborated and submitted
Article 5 (a) Support programmes and networks or organizations aimed at defining, conducting, assessing and financing research, data collection and systematic observation	– PEACE Project is reviewing and analyzing historical data on climate change – Meteorological Department and AgroMet collecting climatic data – FEWS Net and AgroMet are analyzing climatic information, with a particular emphasis on food security	– National Climate Change Committee not yet established and therefore a focal body for this activity does not exist – Low levels of knowledge concerning climate change and its potential impacts – Climate change is currently not considered a national priority and therefore is being little addressed – National research and technical capacities in the area of climate change are weak – With the exception of PEACE Project, information being collected is not being analyzed to inform on the impacts of climate change or to provide information to relevant decision/ policy makers
Article 5 (b) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, promoting access to, and exchange of, data and analyses		
Article 6 (a) Promote and facilitate: (i) The development and implementation of educational and public awareness programmes on climate change and its effects; (ii) Public access to information on climate change and its effects; (iii) Public participation in addressing climate change and its effects and developing adequate responses; and (iv) Training of scientific, technical and managerial personnel.	– Public awareness with respect to environmental issues is specifically mentioned in the Environment Law and falls under the mandate of NEPA – The NAPA process has increased levels of awareness and knowledge amongst Government staff – Regional consultations conducted during NAPA and NCSA process provided opportunities for public dialogue	– There are currently no public awareness, training or educational programs directly addressing climate change – National Climate Change Committee not yet established – Low levels of knowledge concerning climate change and its potential impacts – Climate change is currently not considered a national priority and therefore is being little addressed – Human resource capacities in the area of climate change are weak
Article 6 (b) Cooperate in and promote: (i) The development and exchange of educational and public awareness material on climate change and its effects; and (ii) The development and implementation of education and training programmes.		

Table 4. Summarized analysis of strengths and constraints facing Afghanistan in meeting obligations under the UNCBD

Articles	Strengths	Weaknesses
Article 6 General measures for conservation and sustainable use	– Interim Afghanistan National Development Strategy addresses the environment both specifically and as a cross-cutting issue – Environment Law approved – Draft NRM laws in the legislative pipeline – MAIL and NEPA share environmental management and NRM responsibilities – Civil service reform process well underway – Draft land policy is currently under discussion – Application for NBSAP funding submitted to GEF	– Old and outdated legal framework characterizes the natural resource management and biodiversity conservation sectors – Laws and regulations associated with the Environment Law have either not yet been approved, or are not yet drafted – Government institutions currently have limited capacity and budget to implement mandate – In terms of overall governance, links between the centre and province are weak – Land tenure represents a politically contested issue and is unlikely to be resolved over the short- or medium-terms – No national strategy for biodiversity conservation exists
Article 7 Identify and monitor components of biological diversity, as well as activities with significant adverse impacts on conservation	– Universities exist in major urban centers around the country – International organizations are addressing this issue in limited geographical areas	– MAIL and NEPA currently lack the capacity to develop a baseline and monitor components of biodiversity and activities that have significantly adverse impacts on conservation – The topics of biodiversity and conservation are little addressed within teaching curriculum – Universities lack the resources, capacity and support to develop monitoring and research programs
Article 8 In-situ conservation	– Department of Natural Heritage established and functioning in NEPA – Division of Protected Areas and Wildlife Conservation established and functioning in MAIL – History of NPAs in Afghanistan has facilitated the identification of priority areas that should be established – Draft management plan for the proposed Band-e-Amir National Park has been elaborated – Section IV of the IIP addresses protected area creation and management – CITES is mentioned in the Environment Law	– Weak institutionality and capacity – No formal PAs in existence in Afghanistan today – No management plans for PA management have been elaborated and approved – Rights and mandates concerning PA creation and management being contested between Provincial level government and national government – IIP is still in draft format and is not yet institutionalized, socialized or fully operational – There is no strategy for ensuring the establishment of a representative system of protected areas – CITES implementation system not yet established; Administrative and Scientific Authorities not yet identified
Article 9 Ex-situ conservation	– Mentioned within the Environmental Law	– Presently not considered a priority in Afghanistan – Lack of capacity
Article 10 Sustainable use of components of biological diversity	– Components II and VI of the IIP address community based natural resource management and the generation of income from the sustainable harvest and commercialization of natural resource products – NSP has worked with local communities to develop CDCs that provide a local level institutional structure that could be used in natural resource management and biodiversity conservation – Trial community based management programs are underway in a number of provinces – Five year hunting ban in place	– IIP is still in draft format and is not yet institutionalized, socialized or fully operational – Legislative framework (e.g. Forest Law and Rangeland Law) is currently under development – Few Afghan NGOs focusing on NRM and biodiversity conservation exist – Decentralization of governance and devolution of powers has not taken place – Ability to implement complete bans (e.g. hunting ban) is very limited – Rights and mandates concerning natural resources being contested between Government and local communities

Table 4 (cont.). Summarized analysis of strengths and constraints facing Afghanistan in meeting obligations under the UNCBD

Articles	Strengths	Weaknesses
Article 11 Incentive measures	– Component VI of the IIP addresses the generation of income from the sustainable harvest and commercialization of natural resource products – Trial community based management programs are underway in a number of provinces	– Incentive measures do not currently favor sustainable natural resource use and management – Instability associated with years of conflict has broken down local natural resource management institutions – Population growth and poverty mean that people are forced to overexploit the natural resource base to meet basic needs
Article 12 Research and training	– Network of Universities exists in major urban centers around the country – Short-term technical training being provided by international organizations	– There is no national framework, strategy or plan for research into climate change – Lack of capacity and quality in higher education institutions – Topics of biodiversity and conservation are little addressed within the curriculum – Technical training provided by international organizations is frequently short-term in nature – Frequent changes in Government staff
Article 13 Public education and awareness	– Schools are slowly opening up around the country – Environmental education and awareness raising programs are being implemented on a small scale by international organizations working alongside the Government	– In specific geographical areas (south, south-east and east), schools are being closed and remaining open schools are threatened – Issues of conservation and biological diversity are not addressed in detail in the national curriculum
Article 14 Impact assessment and minimizing adverse effects	– National EIA policy has been issued, and EIA Regulations have been promulgated	– Capacity to implement Regulations remains limited
Article 15 Access to genetic resources	– Mentioned within the Environmental Law	– Not yet party to Cartagena protocol
Article 16 Access to and transfer of technology		– Limited capacity to participate in the transfer of technology – Information exchange systems are weak
Article 17 Exchange of information	– Collaboration with the Islamic Republic of Iran regarding management of the Sistan Wetlands, shared transboundary resource, and the Governments of Tajikistan, China and Pakistan regarding the establishment of a transfrontier park in the Pamirs	
Article 18 Technical and scientific cooperation	– International organizations are working alongside the Government and Afghan people to undertake biodiversity conservation activities	– Continued conflict and security concerns make many international organizations reluctant to work in Afghanistan
Article 19 Handling of biotechnology and distribution of its benefits	– Not currently a priority in Afghanistan. Capacity in this respect is limited.	

Table 5. Summarized analysis of strengths and weaknesses facing Afghanistan in meeting obligations under the UNCCD

Articles	Strengths	Weaknesses
Article 4 General obligations		
4.1 Parties shall implement obligations under UNCCD; need to coordinate effects and develop a coherent long-term strategy at all levels.	– Technical Deputy Ministry of MAIL has been designated as focal point for UNCCD – 3rd National Report elaborated and submitted	– NAP has not yet been elaborated and, as such, a strategic plan for addressing desertification is currently lacking
4.2 Integrated approach addressing physical, biological and socio-economic aspects of the processes of desertification and drought. Integration of strategies for poverty eradication into efforts to combat desertification and mitigate the effects of drought. Importance of cooperation between parties.	– MSP prepared by UNDP and the Afghan Government for Capacity Building for Sustainable Land Management in Afghanistan considers an integrated approach – Advisory Committee on Desertification and Sustainable Land Management established in MAIL – Afghanistan National Disaster Management Authority (ANDMA) has been established under the Presidency – CBNRM (as described in the IIP) will be implemented with both poverty alleviation and natural resource management as key components	– Processes of desertification have been given little attention at national level – Low importance allocated to desertification in the national policy arena – Economic and institutional incentives do not promote sustainable natural resource and land management
Article 5 Obligations of affected country parties		
(a) Give due priority to combating desertification and mitigating the effects of drought.	– Technical Deputy Ministry has been designated as focal point for UNCCD – Agricultural Master Plan and associated IIP address a number of the underlying causes of desertification	– Low importance allocated to drought and desertification in the national policy arena
(b) Establish strategies and priorities within the framework of sustainable development plans and/ or policies, to combat desertification and mitigate effects of drought.		– Low levels of knowledge concerning desertification and its potential impacts, both amongst technical persons and policy/ decision makers
(c) Address underlying causes of drought, paying special attention to the socio-economic factors that contribute to desertification processes.	– Agricultural Master Plan and associated IIP address a number of the underlying causes of desertification	– In practice, immediate actions to reduce poverty and suffering frequently take priority over longer-term sustainability
(d) Promote awareness and facilitate participation of local populations.	– See Article 19 – Participation of local populations is emphasized in the i-ANDS, Agriculture Master Plan, IIP, and MRRD Strategy, amongst other national level strategies and policies	– See Article 19 – Participation is a new concept and full embracement and institutionalization will take time
(e) Provide an enabling environment by strengthening relevant existing legislation, enacting new laws and establishing long-term policies and action programmes.	– MSP for Capacity Building for Sustainable Land Management in Afghanistan considers a revision of policies, strategies, laws, etc. to mainstream sustainable land management – Environment Law passed – Rangeland, Forestry and Land Laws are currently being drafted	– Comprehensive rangeland, forestry and land laws do not exist – Policies and action programmes that specifically address desertification have not yet been elaborated – Politically contentious legislation may be difficult to pass and low human resource capacity and weak institutionality
Article 8 Relationship with other conventions Coordination encouraged, in particular with UNFCCC and UNCBD	– NAPA and NCSA processes are currently being implemented – Afghanistan participates in COPs	– Low human resource capacity, particularly concerning the content of each of the Conventions and related technical issues

Table 5 (cont.). Summarized analysis of strengths and weaknesses facing Afghanistan in meeting obligations under the UNCCD

Articles	Strengths	Weaknesses
Action programmes, scientific and technical cooperation and supporting measures		
Article 9 Basic approach An NAP to combat desertification and mitigate the effects of drought and shall be prepared and continuously updated using participatory processes and on the basis of lessons learned. Action programmes should be closely interlinked with other efforts to formulate national policies for sustainable development.	– UNDP and the Afghan Government have prepared a MSP that has been submitted to GEF for *Capacity Building for Sustainable Land Management in Afghanistan*	
Article 10 National Action Programmes NAPs aim to identify the factors contributing to desertification and practical measures necessary to combat desertification and mitigate the effects of drought.	NAP has not yet been elaborated for Afghanistan. Notwithstanding, the following ongoing activities will contribute to processes of participatory elaboration and implementation: – FAO and AgroMet are working together with the Government to enhance national climatological, meteorological and hydrological capabilities – Agriculture Master Plan, draft Forest and Rangeland Laws and draft Land Policy call for effective participation at multiple levels – Food security, livelihood projects and sustainable irrigation schemes are all covered in the Agriculture Master Plan and associated IIP – Famine early warning systems network (FEWS Net) has been established in MRRD	– NAP does not yet exist – Low human resource capacity for the design, preparation and implementation of the NAP
10.1 Purpose of NAP is to identify factors contributing to desertification and practical measures necessary to combat desertification and mitigate effects of drought.		
10.2 Important attributes of these programmes include – the incorporation of long-term strategies; integration with national policies for sustainable development; sufficient flexibility to cope with changing conditions; particular attention to preventative measures; the importance of enhancing national climatological, meteorological and hydrological capabilities; partnership; effective participation of all stakeholders; and regular reporting on the status of their implementation.		
10.3 NAPs may also include the following drought mitigation measures – establishment or strengthening of early warning systems; strengthening of drought preparedness and management, establishment of food security systems; establishment of alternative livelihood projects; and development of sustainable irrigation programmes.		
10.4 NAPs may address: promotion of alternative livelihoods; improvement of national economic environment with a view to eradication of poverty and food security; demographic dynamics; sustainable management of natural resources; sustainable agricultural practices; development and efficient use of various energy sources; institutional and legal frameworks; strengthening of capabilities for assessment and systematic observation; and capacity building, education and public awareness.		
Article 11 Subregional and regional action programmes Where appropriate, action programmes that go beyond the national context can be prepared. These may include the sustainable management of transboundary natural resources, scientific and technical cooperation, and strengthening of relevant institutions.	– UNEP facilitating collaboration with the Islamic Republic of Iran regarding management of the Sistan Wetlands, a shared transboundary resource	– Low human resource capacity to participate actively in regional programmes

Table 5 (cont.). Summarized analysis of strengths and weaknesses facing Afghanistan in meeting obligations under the UNCCD

Articles	Strengths	Weaknesses
Articles 12 – 14 International Cooperation and Support/ Cooperation for NAPs Emphasis is placed on cooperation and coordination in the development and implementation of action programmes.	– UNDP has provided technical assistance to the Afghan Government for the preparation of a MSP for Capacity Building for Sustainable Land Management in Afghanistan	– Donors frequently prioritize other pressing issues when allocating financial and technical resources, e.g. security, health, education, poverty reduction, and so on
Scientific and technical cooperation		
Article 16 Information collection, analysis and exchange Emphasizes coordination in the collection, analysis and exchange of data, including the establishment of early warning and advance planning for periods of adverse climatic variation in a manner that is accessible to local communities and decision makers.	– PEACE Project is collecting, analyzing and distributing information on rangeland productivity; AgroMet is doing likewise for climatic data – FEWS Net has been established in MRRD	– Low human resource capacity to collect, analyze and exchange data – Ability to establish comprehensive baseline is limited
Article 17 Research and development Covers research and development in the fields of combating desertification and mitigating the effects of drought.	– PEACE Project is collecting, analyzing and distributing information on rangeland productivity; AgroMet is doing likewise for climatic data – FEWS Net has been established in MRRD – FAO researching drought-resistant seed varieties – Network of Universities exists	– Low human resource capacity – Framework or strategic plan for researching desertification and related issues does not exist – Low levels of capacity and/ or resources in national research institutions and Universities
Article 18 Transfer of technology Discusses transfer, acquisition, adaptation and development of environmentally sound, economically viable and socially acceptable technologies relevant to combating desertification and/ or mitigating the effects of drought, with a view to contributing to the achievement of sustainable development in affected areas.		– Low human resource capacity – Poor coordination of institutions in relation to cross-cutting problems
Supporting measures		
Article 19 Capacity building, education and public awareness Capacity building requires multiple approaches and is to be undertaken with full participation at all levels. Education and public awareness focuses on promoting an understanding of the causes and effects of desertification and drought, and of the importance of meeting the objective of UNCCD.	– UNEP, PEACE and ECODIT are realizing capacity building and institutional strengthening activities with NEPA and MAIL – The Agriculture Master Plan considers the establishment of a comprehensive extension service system (building upon that which currently exists) – NEPA has a legislated mandate for environmental education and public awareness raising activities	– There are currently no public awareness, training or educational programs directly addressing desertification and drought – Low levels of knowledge concerning desertification and its potential impacts – Desertification is currently not considered a national priority and therefore is being little addressed – Actions to mitigate the effectives of drought are frequently reactive (e.g. food distribution) rather than preventative (e.g. improved land management) – National research and technical capacities in the area of desertification and drought are weak – Frequent changes in Government staff
Annex II: Regional Implementation Annex for Asia. All of the above.		

6 Cross-cutting capacity constraints and opportunities for compliance with the Rio Conventions

6.1 Introduction

This Chapter presents the cross-cutting and synergistic capacity constraints and opportunities for the improved compliance of Afghanistan with the Rio Conventions. Cross-cutting capacity constraints and opportunities (with emphasis being given to "functional/operational" synergies between the Conventions) were arrived at through a comparative analysis of the specific constraints and opportunities that were identified for each of the individual Conventions. They were then verified by the members of the fourth WG (comprised of members from all three WGs).

6.2 Cross-cutting capacity constraints for implementation of the Rio Conventions

Conflict and poverty

Conflict continues to affect much of Afghanistan, particularly the south-east, east and the arid and semi-arid lands of the south and south-west. At the same time, the legacy of over two decades of conflict continues to seriously affect natural resource management practices across the country. The effects of conflict on compliance with the Rio Conventions are too numerous to list here, but a number of key issues can be summarized.

- Changes in government and governance systems have characterized Afghanistan over the past three decades. Together with the effects of conflict, national institutions and

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Harsh living conditions of returnees to Kabul, 2006

associated policy and legislative frameworks are today fragmented. Natural resource related legislation, where it exists, is outdated and does not reflect modern principles of environmental management. Efforts are being made at the national level to consolidate governance systems, but significant progress in this respect will take time.

- National research institutions and capacities have been severely affected by three decades of conflict. Many professors left the country and others lost their lives. Curricular revisions aimed at the integration of new knowledge were realized during the Soviet occupation, with an emphasis on communism, and the Taliban Government, with an emphasis on religion. More recently, revisions are again ongoing with assistance from the international community. As a result of continuing difficult working conditions, today many of the University professors juggle their University employment with consultancies or second and third jobs. University training only reaches Bachelor level and research capacity and facilities are lacking.

- Conflict and the legacies of conflict (e.g. minefields) restrict access to large areas of the country. This is particularly so in the semi-arid and arid lands of the southern, south-eastern and south-central regions, where the land is highly vulnerable to desertification and the effects of climate change. The ongoing conflict prevents Government access to the affected areas for the realization of assessments and physical interventions.

- Local, regional, national and international displacement goes hand-in-hand with conflict. Deep poverty and related insecurity present local people with incentives that stimulate the prioritization of short-term survival over medium- to long-term investments in the sustainability of natural resource use. Local influxes of displaced people place increased pressures on the natural resource base and, in some instances, result in irreversible over-exploitation and degradation as impoverished refugees are forced by necessity to pursue all possible survival mechanisms.

As noted previously in this report, Afghanistan is one of the poorest countries in the world. Issues such as health, education, physical infrastructure, and promotion of economic growth, therefore frequently take precedence over environmental issues. Confounding this situation has been the tendency (common to many post-conflict countries) to take a reactive, rather than proactive, approach to planning responses to environmental problems. At the local level, poverty frequently forces people to overuse the natural resource base in an attempt to satisfy their basic needs, and the ability of households to recover from "shocks" (which include environmental shocks such as flooding and drought) is limited. In an attempt to increase manpower and spread risk (and also inextricably intertwined with the Afghan culture) population growth rates are amongst the highest in south-east Asia. The cumulative effect of these dynamics is the generation of a downward spiral of poverty that leads to overexploitation of the natural resource base, which, in turn, serves to further entrench poverty.

Weak policy and legal frameworks for facilitating compliance with the Rio Conventions

As a post-conflict country, Afghanistan lacks a comprehensive framework of enabling laws that facilitate the implementation of a consolidated approach to national environmental management and compliance with the Rio Conventions. Furthermore, desertification, drought, biodiversity conservation and climate change are rarely considered comprehensively during the processes of elaborating rural development plans, sector policies, investment plans and national legislation. Such weak coordination leads to diverging approaches that can generate conflicts in natural resource management.

Pre-2001 legislation does not adequately address environmental management. This is because the legislation developed during the Taliban period failed to incorporate best practices associated with modern environmental management. Efforts are being made to address this situation with the promulgation of the Environment Law and the drafting of a series of new environment-related laws that are currently being revised at a national level. It is anticipated that a number of these will generate intense discussions and will therefore take some time to pass as they have large implications for some of the more powerful actors who are currently reaping benefits from unsustainable natural resource exploitation (particular examples are the land and rangeland laws).

At the Provincial and District levels, government staff are not empowered and frequently lack the mandate, resources and capacity to translate the policies, plans and laws into practice. Finally, limited technical capacity makes the monitoring, implementation and enforcement of national legislation difficult.

Weak inter-institutional coordination mechanisms

Coordination and collaboration between those institutions involved in the implementation of the Rio Conventions is generally weak. Inter-institutional coordination mechanisms addressing critical themes related to the implementation of the Rio Conventions are either ineffective or non-existent, associated awareness and technical knowledge is low, vertical and horizontal information flows both at the national level and between the national level and local stakeholders (government and community) are exceptionally weak, and institutional priorities are frequently diverse and unharmonized. Additionally, a lack of strategic and Convention-specific planning hinders the adoption of a consolidated and coordinated approach to moving towards compliance with the Conventions at both national and sub-national levels.

Lack of strategies and plans for implementation of the Rio Conventions

In a post-conflict, emerging democracy with limited institutional, human and physical capacities, strategies and plans that guide the implementation of the Rio Conventions are of critical importance. To date these strategies and plans are lacking. Together with weak inter-institutional coordination mechanisms, interventions towards compliance with the Rio Conventions are frequently isolated and short-term, and do not feed into a larger, comprehensive national programme of action.

Low awareness of the Rio Conventions and associated issues

Levels of awareness of the Rio Conventions and associated issues are low amongst both government staff and the general Afghan public. Awareness raising materials, particularly in local languages, are almost entirely absent. Although the mandate for public education and awareness raising rests with NEPA, the relative youth of this Agency has meant that awareness programmes on desertification, biodiversity and climate change do not exist beyond erratic and generally ineffective seminars or workshops. Public awareness programmes that do not form part of an ongoing and continuous education process that includes practical demonstrations will generate little sustained interest from the public and decision makers.

There is an inadequate integration of issues related to the Rio Conventions into the national curriculum, both at University and high school levels. This limits longer-term development of public appreciation of these issues.

Lack of data and information

Afghanistan is affected by both a lack of data and information for monitoring compliance with the Rio Conventions, and similarly lacks a strategic plan (including baseline data, clear monitoring indicators, standardized procedures for data analysis, and so on) for data collection and analysis. University and research institutions are inadequately equipped and professors are poorly motivated. Information and data exchange between key sectors responsible for the Rio Conventions is weak, partly due to the lack of institutional coordination mechanisms, but also attributable to a lack of information networks. The low coverage and slow spread of information and communication technology especially in local governments is a constraint to vertical information flows.

Whereas the collection of some specific information is being facilitated by international institutions, this has not fed into a larger national framework orientated towards compliance with each of the Rio Conventions. Lack of capacity at the national level similarly represents a barrier to the establishment and integration of the information that is being collected into a functioning larger framework. This is particularly so in the light of the disparities that exist between the current capacities of many government and NGO staff, a situation further confounded by language barriers.

Inadequate technical capacities to comply with the Rio Conventions

One of the most critical constraints affecting Afghanistan's compliance with the Rio Conventions

Land degradation through rain-feed agriculture in Sar- Rostaq, Takhar: unstable uplands are eroding into lower agricultural lands

is the limited technical and managerial capacity of related human resources. The staffing and facilities of those institutions critical to compliance is weak, particularly given the broad and complicated nature of the environmental issues addressed. Budget constraints experienced by government departments and institutions responsible for environmental management, together with the lack of a comprehensive capacity strengthening plan and limited access to capable trainers, limits their ability to effectively build the capacity of available personnel. Government employment opportunities, whilst in high demand, often fail to attract and retain highly qualified personnel who instead opt for employment in local and international NGOs and aid agencies that are able to offer higher salaries and more attractive conditions. It is furthermore necessary to strengthen absorbing capacities for project implementation in many of the Ministries.

Unsustainable land and resource management practices

Conflict, poor returns from agricultural production associated with sub-optimal agricultural practices, drought, desertification and widespread poverty, are all factors that contribute to an under-valuation of land and either an inability or lack of willingness to invest in sustainable land and natural resource management. Inappropriate and unclear land and resource tenure arrangements undermine investments, particularly on communal rangelands. This situation is further complicated by landlords, commanders or other powerful people who frequently assume control over large areas of land for production of cash crops, with little regard to long term sustainability. This is particularly evident in those areas where extensive tracts of rangeland (often characterized by very steep slopes) have been ploughed up for rain-fed wheat production; where high value resources are indiscriminately harvested (e.g. pistachio nuts), often involving the use of arms to keep the local population out; and where local people are trapped into systems of credit-repayment that are linked to opium poppy production.

Lack of infrastructure

A large proportion of Afghanistan's infrastructure was destroyed during the last three decades of conflict. At the same time, the conflict itself together with low levels of international investment during the Taliban regime, meant that there was little progress in developing or maintaining

the physical capital of the country. Post-2001, the development of physical capital has been prioritized by international agencies, but given the low base from which activities have been initiated, huge investments are required. In particular, the construction of educational institutions, electrical power, government buildings, communications, roads, and so on, are all advancing at varying speeds. In spite of the advances, in rural areas where environmental degradation is most evident and poverty is intensifying, levels of physical capital remain exceptionally low. This situation is being at least partially addressed by the Government's NSP. Targeted and specialized infrastructural interventions are generally lacking for the *kuchis* however, and sedentarization as a strategy to access hospitals, schools and markets, seriously affects the dynamics of rangeland grazing and management.

Inadequate funding

At a global level, the profile of the environment is being raised and increased levels of funding are becoming available. However, at a national level in Afghanistan the range and enormity of needs facing the Afghan people has meant that the Government and international aid agencies have concentrated their efforts on emergency response together with high-priority development issues that include education, health and basic infrastructure, amongst others. Accessing available resources at the global level has equally been affected by the inability of relevant sectors within Afghanistan to prepare the necessary proposals.

Limited research capacities

Although a number of research activities are being supported by international organizations in Afghanistan, internal capacity for the realization of research is extremely low. The national University system teaches to Bachelor level, no research degrees are offered and University professors have little incentive (other than personal motivation) to undertake independent research. The absence of overall strategic planning documents for addressing desertification loss of biological diversity and climate change problematizes the realization of useful baseline surveys and the development of comprehensive research programmes.

Natural Pistachio Forest degradation in Sar-Rostaq, Takhar

6.3 Cross-cutting opportunities for synergistic capacity building for implementation of the Rio Conventions

Existing supportive institutions

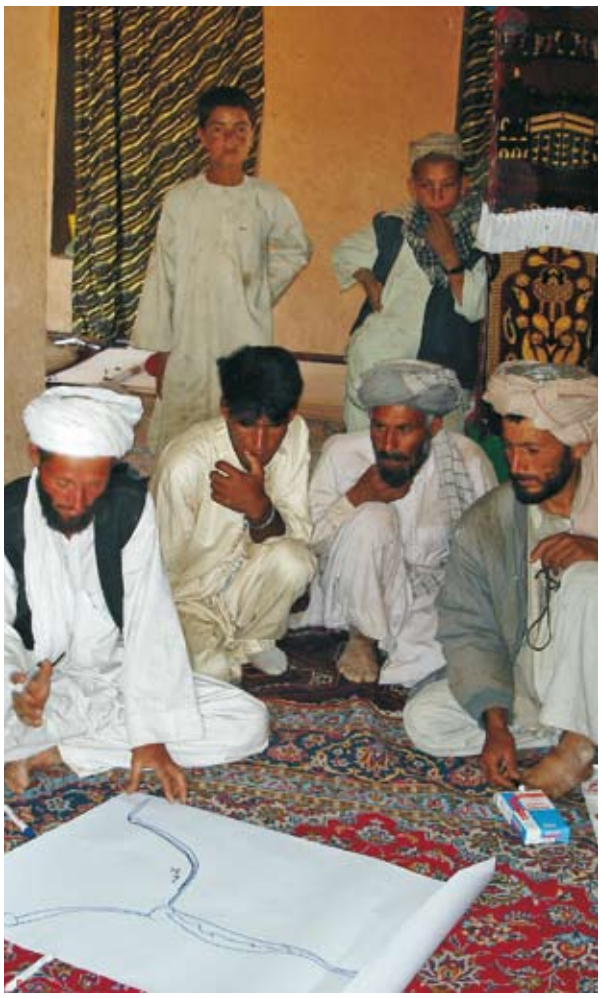
NEPA is the responsible government agency for environmental issues, with a mandate as the overall environmental regulatory, policy-making, coordination, monitoring and enforcement institution, with line ministries responsible for actual management of environmental resources. NEPA therefore provides an institutional foundation for the implementation of the Rio Conventions. Coordinating mechanisms such as the Committee for Environmental Coordination, legally established under the Environment Law in 2006, are similarly important. Having different lead agencies for the Rio Conventions (MAIL for UNCCD and UNCBD, and NEPA for UNFCCC) with a number of different government ministries being involved in their implementation presents a series of challenges, but has the potential to facilitate an integrated approach that ensures the inclusion of multiple perspectives and priorities.

Initial legislative framework

The Environment Law (2005) is fundamental in facilitating the sustainable management of environmental resources. The ANDS's poverty eradication focus is closely related with the objectives of the Rio Conventions. As such, the mainstreaming of the issues addressed in the Rio Conventions into national and sector development plans is possible. The periodic review of the national and sector development policies and the annual budgeting process provide an important opportunity for the integration and mainstreaming of activities that contribute to compliance with the Rio Conventions. Although none of the existing national laws, policies and strategies specifically mention the Rio Conventions, they do outline measures necessary for moving towards compliance with the Conventions and can be reviewed and strengthened in this respect.

The ongoing process involved in developing and securing approval of the ANDS, Rangeland, Hunting and Forest Laws, Land Policy and related legislation, and protected areas and environmental impact assessment regulations, presents an excellent opportunity for the integration of Rio Convention issues into the legislative framework.

Participatory area mapping in Karnail Village, Zindajan, Herat



Participatory area mapping in Karnail Village, Zindajan, Herat

Participatory approaches to natural resource management have been recognized

At an institutional level, the importance of participatory approaches to rural development (including natural resource management) has been fully recognized. Furthermore, invaluable experience is being gained throughout Afghanistan during the process of implementing the NSP, as well as various CBNRM activities that are being supported by the international community. The CDCs created under NSP provide a potential local level institutional structure that can serve as a basis for undertaking local level initiatives associated with the implementation of the Rio Conventions; whereas ongoing CBNRM activities offer important learning experiences for scaling up. Furthermore, the development and piloting of new natural resource related legislation provides an excellent opportunity for refining proposed legislation according to field experiences.

Supportive international community

Although the resources of the international community are focused on the ongoing conflict, health, education and infrastructure development, a number of resources exist and can be tapped for addressing environment and rural development related issues. This includes GEF funds (e.g. current NCSA and NAPA processes, follow-up NAPA projects, elaboration and implementation of INC, NAP, and NBSAP, MSPs and FSPs); USAID biodiversity earmarked funds, in addition to other funds targeting agriculture and rural development; and funds channeled to environmental and agricultural related issues by other international donors that include ADB (e.g. preliminary inventory of carbon emissions, land administration), World Bank (e.g. conflict resolution relating to land and natural resource use, horticulture development), EC (institutional strengthening of NEPA, horticulture development), and so on.

Potential for mainstreaming and tapping global resources

The ongoing process of elaborating the ANDS and provincial level development frameworks, together with the annual budgeting process, provide opportunities for the integration of emerging issues and priorities. This is conducive for the mainstreaming of issues related to the Rio Conventions in order to enhance resource allocation for their implementation. At the global levels, the increasing profile of issues such as climate change will provide increasing opportunities to access related resources.

6.4 Summary

Cross-cutting and synergistic capacity constraints to compliance with the Rio Conventions greatly outweigh associated opportunities, illustrating the challenges that face Afghanistan in the implementation of the Rio Conventions. Constraints range from overarching issues, such as the ongoing conflict and poverty, to more Convention-specific issues that include the lack of strategies and plans for the implementation of the Rio Conventions. Together with the opportunities identified, these provide a framework within which cross-cutting capacity building opportunities and constraints can be identified and developed within the NCSA Action Plan in the following Chapter.

7 NCSA Action Plan

7.1 Introduction

The process used to develop the NCSA Action Plan involved analyzing the actions and associated capacity needs detailed in the three thematic assessment reports so as to identify both cross-cutting and Convention-specific capacity strengthening intervention areas. Six broad capacity intervention areas and a number of Convention-specific intervention areas were identified. The six cross-cutting intervention areas are (details presented in Annex 6):

1. Institutional strengthening for full participation in the Rio Conventions;
2. Legal, policy and enabling frameworks;
3. Education and public awareness;
4. Sustainable land and resource management;
5. Research (research design, data collection, analysis, modeling, monitoring and dissemination); and
6. Technical and managerial capacity.

Within each of the cross-cutting intervention areas, a series of outputs and corresponding priority interventions were identified for systemic, organizational and individual levels.

The three Thematic Reports were then revisited and Convention-specific intervention areas were identified, together with proposed outputs and associated interventions. Convention-specific intervention areas are:

1. Scientifically and socially sound strategy for developing a comprehensive and representative system of natural protected areas
2. Designation of priority protected areas;
3. Development of a red-list of endangered species of large mammals;
4. Establishment of a functional CITES implementation system;
5. Development of drought early-warning system;
6. Development of local, drought and salt resistant crops;
7. Interventions to improve food security;
8. Development and implementation of range management systems;
9. Improve efficiency of use of energy resources and develop alternatives to wood-based energy;
10. Increased understanding of the impacts of, and vulnerability to, climate change, current and future climate variability, and the implications for sustainable development; and
11. Realize rehabilitation of areas affected by drought, desertification and floods.

Cross-cutting interventions and Convention-specific areas formed the basis for compiling a comprehensive Action Plan that identifies implementation levels, role of implementers, lead institution, collaborators, verifiable indicators and an estimated implementation time frame. This Chapter presents a summary, whereas full details are provided in Annex 7.

7.2 NCSA Vision

The NCSA vision for Afghanistan is to catalyze domestic and international assistance to build Afghanistan's capacities to effectively implement priority actions in the areas of biological diversity, climate change and desertification, thereby contributing positively to sound global environmental management.

7.3 Objectives of NCSA

The objectives of the Afghanistan NCSA are:

- To identify priority issues for action within the thematic areas of biodiversity, climate change and desertification;
- To explore related cross-cutting and Convention-specific capacity needs;
- To catalyse targeted and coordinated action and requests for future external funding and assistance; and
- To link country action to the broader national environmental management and sustainable development framework.

7.4 Action plan for cross-cutting capacity needs and capacity development actions

Institutional strengthening for full participation in the Rio Conventions

Lack of human resource capacities, strategic planning and consolidated coordination with respect to the Rio Conventions are major capacity constraints limiting effective moves towards compliance. Strong coordination between and within relevant governmental and non-governmental institutions, together with the adoption of an integrated approach, is fundamental. This can be achieved through strengthening strategic planning, establishing effective mechanisms for inter- and intra-institutional coordination, and developing human resource capacities (also see below, 7.4, section on technical and managerial capacity). To this end, it is essential that support be provided for the elaboration of the INC, NAP and NBSAP; establishing and improving coordination mechanisms; strengthening human resource capacity through recruitment, training and better working conditions; and developing physical infrastructure and facilities in a manner that facilitates coordination at both national, provincial and district administrative levels.

The above-detailed interventions will result in the development of planning tools that will facilitate the process of comprehensively identifying, targeting and implementing activities required for full compliance with the Rio Conventions. Achieving this will require the active participation of multiple governmental and non-governmental institutions. NEPA will provide the lead role in the instance of UNFCCC and MAIL in the instances of UNCCD and UNCBD. To this end, UNDP and UNEP have already worked together with the Government to facilitate the development of proposals to GEF for the elaboration of the INC, NAP and NBSAP planning documents. These activities will also be partially integrated under the 3-year extension of the UNEP *Institution and Capacity Building Programme for Environmental Management in Afghanistan* and in the 3-year *Biodiversity Support Project for NEPA* funded by USAID.

Legal, policy and enabling frameworks

Inadequate or alternatively no integration of Rio Convention issues directly into sector policies and plans, together with the weak implementation of policies and laws for natural resource management are key constraints towards the utilization of these resources and compliance with the Conventions. The relatively new system of governance in Afghanistan, that is currently elaborating new rural development plans, sector policies, investment plans and national legislation, provides an excellent opportunity to ensure the integration of Convention issues. Given the relevancy of natural resource management laws and policies to the Rio Conventions, many aspects of their implementation will form critical components of the process of complying with the Conventions.

The development and implementation of new legislation related to natural resource management in Afghanistan must be accompanied by awareness raising activities, both within the Government itself and also between the Government and the general public. Implementation must be piloted, capacities in translating new legislation into practice improved, and successes scaled up to larger geographical areas. Scaling up can be facilitated through the development and dissemination of appropriate methodologies and guidelines.

It is expected that these interventions will strengthen the integration of Convention issues into legal, policy and regulatory frameworks whilst also developing human and institutional capacity to implement and enforce laws and policies for sustainable natural resource management.

Education and public awareness

Educational levels in Afghanistan are amongst the lowest in the world, with an estimated 23.5 percent of the population above the age of 15 being literate. Formal knowledge about the environment is limited (although a wealth of traditional knowledge exists), as is that about the Rio Conventions. The complexity of information on the Conventions, language barriers, a lack of media personnel specializing in environmental issues, and a limited integration of Convention issues into the formal education curriculum have further contributed to the low levels of awareness about desertification, biodiversity and climate change. The growing scale, scope and freedom of press and mass media in Afghanistan presents an opportunity to conduct campaigns that raise awareness of these issues. NEPA has a

Department of Research, Policy and Information responsible for raising environmental awareness, whereas the processes that accompany the revision of national curricula for primary, secondary and tertiary institutions provide an opportunity to integrate Convention issues into educational programmes.

In order to facilitate the process of strengthening public knowledge and awareness of Convention issues, it is necessary to develop simplified educational materials that are in the two main languages of Afghanistan. Awareness raising workshops are required for key stakeholders, particularly the policy and decision makers; these should be complemented by targeted training workshops for key Government and NGO staff that aim to develop capacities to run campaigns and raise public awareness. Work that has been undertaken by UNEP to build the capacity and develop the interest of journalists and photographers in environmental issues should be strengthened.

Implementation of the interventions detailed in the action plan will contribute significantly towards increasing public education and awareness of the Conventions as well as the integration of these issues into the curriculum of schools and Universities around the country.

Sustainable land and resource management

Poverty, insecurity of tenure and poor returns from agricultural production, as well as confused land tenures systems and weak policy and legislative frameworks, are all major capacity constraints in this area. Building on on-going efforts, it is of critical importance that the development of land and natural resource legislation is completed and implementation commenced. This is discussed in greater detail in Chapter 4.3, section on land and resource property rights.

Pilot implementation of the draft new legislative framework and sustainable natural resource management activities is currently being initiated in limited geographical areas. There is a need to institutionalize participatory approaches and facilitate the role of the Government as one that facilitates sustainable management by local stakeholders. A strategic plan for gradual implementation of participatory natural resource management that encompasses systems of adaptive learning will enable the development of synergies and exchange of experiences as implementation progresses. Guidelines should be developed and made available to all sectors. Individual capacities to prepare land and natural resource management

Raising environmental awareness among school children in Dasht-e-Nawar, Ghazni

plans under different social and environmental conditions must be strengthened by targeted training programmes. Activities that address CBNRM must be accompanied by efforts to improve food security and rehabilitate those areas affected by drought, desertification and flooding.

Implementation of the identified actions will expand and consolidate sustainable land and resource management initiatives, strengthening the role of the Government as facilitator and building on the comparative advantages of local people who live alongside and use natural resources on a daily basis.

Research (research design, data collection, analysis, modeling, dissemination, and monitoring)

Aside from a small number of research initiatives being supported by international organizations, the capacities of national institutions to undertake research into biodiversity, climate change and desertification are extremely limited. This situation is confounded by few researchers, lack of a strategic plan and funding for realizing research, absence of essential infrastructure and facilities, weak research-extension linkages, and limited accessibility to and knowledge of information technology. At the same time, the existence of supportive international organizations that include FEWS-Net, FAO, UNEP, PEACE and AgroMet, should be taken advantage of in order to build national research capacity and strengthen information exchange and dissemination.

Training programmes in research design and implementation are recommended, together with the establishment of a programme for promising Afghan students to participate in international Master and Doctorate research courses.

Given current low levels of capacity, research must be initiated with the development of strategic, incremental research plans that focus on specific priority issues. Where possible these can be linked directly to, and supported by, international research programmes. As research programmes and methodologies are identified and implemented, training is required at a local level in data collection and management, use of information and communications technology, and packaging of information in a manner that it can be easily understood, interpreted and used by policy and decision makers.

The above activities are expected to strengthen research capacities, including information collection, analysis and exchange, for research into the areas of biodiversity, desertification and climate change.

Technical and managerial capacity

One of the most critical constraints affecting Afghanistan's compliance with the Rio Conventions is the limited managerial and technical capacity of available human resources. Existing training institutions are extremely limited and not adequately equipped to provide for the diverse skills required, given the broad nature of environmental issues. The multiple pressures being placed on national and international funding opportunities in Afghanistan, together with the relatively low priority allocated to environmental and natural resource management issues and the limited capacity of Afghan institutions to prepare proposals for accessing international resources are constraints to resource mobilization for the implementation of the Rio Conventions.

The improvement of technical and managerial capacities in order to increase Afghanistan's ability to comply with the Rio Conventions requires a range of interventions. The Action Plan determined by the NCSA and NAPA WGs decided to focus on the following issues:

- Review of school and University curricula to integrate Rio Convention issues;
- Preparation of training materials, and realization of workshops and seminars, on Rio Conventions and related issues, based on identified needs;
- Training of key actors in the implementation of the Rio Conventions in the following cross-cutting fields: technical and legal aspects of the Conventions, negotiation skills, conflict resolution and management, participatory methodologies, monitoring and evaluation, CBNRM, communications, research and data management, and policy and law development and analysis. Additionally, highly targeted training must be realized for issues that are specific to each of the three Rio Conventions; and

- In order to enhance national capacities to mobilize resources, relevant Ministry Departments must be trained in the preparation of proposals and in the development and implementation of systems that facilitate the effective use of resources mobilized.

The Ministry of Higher Education and Ministry of Education should play a lead role in integrating climate change, biodiversity and desertification related issues into the programmes and curricula of schools and Universities. Those Ministries involved in compliance with the Rio Convention should design skill development programmes for building relevant capacities within their sectors from the national to the provincial and district levels.

7.5 Convention specific capacity needs and capacity development actions

UNCBD

The BW-WG identified and prioritized the need to develop guidelines for the selection and designation of protected areas in a manner that ensures the protection of representative ecological areas. A red-list of endangered large mammal will contribute to increased awareness of the precarious status of Afghanistan's large fauna that continues to be unsustainably hunted. Hunting is both realized to eliminate predators, for meat, and also for skins which frequently enter the international market. To this end, the establishment of a functioning CITES system was also prioritized.

The implementation of the above recommendations encompasses a range of capacity building needs. These include the development and implementation of a scientifically and socially sound strategy for creating a comprehensive and ecologically representative system of natural protected areas, training of professionals in the identification and assessment of populations of large mammals, establishment of a CITES permitting system (including designation and training of Scientific and Administrative authorities, training of customs officials and border guards, and so on), and raising local levels of awareness about the importance of biodiversity conservation.

There are a small number of international organizations implementing projects that have biodiversity conservation as their primary objective. The further integration of these interventions into the Government will contribute to strengthened institutional capacities and increased human resource capacities at the national level in this field.

UNCCD

Key activities included within the Convention-specific NCSA action plan (as detailed in the DRWR-WG Thematic Report) for UNCCD included:

- Drought early warning systems developed through the consolidation of existing efforts in this area;
- Research into local drought and salt resistant crops, including the development of linkages with Institutes in the Central Asian region that are already implementing similar research programmes;
- Measures implemented to improve food security; and
- Energy resources efficiently used and alternatives to wood-based energy resources developed.

UNFCCC

Closely related to those actions proposed under the UNCCD, Convention-specific capacity building recommended for UNFCCC (as detailed in the CCDP-WG Thematic Report) focused on understanding the impacts of, and vulnerability to, climate change, current and future climate variability, and the implications for sustainable development, and building capacity for the rehabilitation of areas affected by drought, desertification and floods.

7.6 Summary

The NCSA Action Plan, summarized in this Chapter and detailed fully in Annex 7, presents priority actions for moving towards compliance with the Rio Conventions. Considered of key importance are the overall planning documents that will facilitate the adoption of an integrated approach to address the three pressing issues of climate change, desertification and biodiversity loss.

8 Framework for the National Adaptation Programme of Action

8.1 Introduction

This Chapter considers some of the key characteristics of Afghanistan's climate, together with major gaps in baseline climatic data. It continues to describe the results of a participative exercise with the CCDP-WG that focused on identifying the main climatic hazards that affect the country (also see Chapter 3). The major impacts of climatic hazards are investigated through the use of a sensitivity matrix that aims to provide a basic assessment of the effects of each of the climatic hazards on ecosystem services, livelihood means and livelihood activities.

8.2 Climate – current situation

Climate data and information on Afghanistan is scanty, sparse and not well documented. The first meteorological weather stations were installed by the Ministry of Transportation in 1953 in selected locations around the country. These were subsequently rendered non-functional for many of the years of conflict and warfare. Today, the Meteorological Department of the Ministry of Transportation currently collects and monitors hydro-meteorological data, as do a number of other Ministries and projects, including MAIL. They rely on a network of weather stations located around Afghanistan, a large proportion of which are located on MAIL property. As of September 2007,[47] AgroMet has installed and is managing 89 sites, all of which record rainfall and snowfall (Figure 5). In addition to rainfall and snowfall, 78 out of 89 report on crop (wheat, maize, rice and barley), pasture and grazing conditions at least twice a month. 22 stations are complete agrometeorological stations, providing observations three times a day. 18 of these are classical stations, recording seven kinds of weather parameters. Four of these sites are automatic stations that can report up to 20 weather parameters daily. The general network of Afghanistan (see Figure 6) includes five complete automatic stations, five classic stations, 106 rain gauges, 15 French component classic stations, five ICARDA automatic stations, three ISAF automatic stations and three further classic stations.

Figure 5. Agromet network illustrating station types

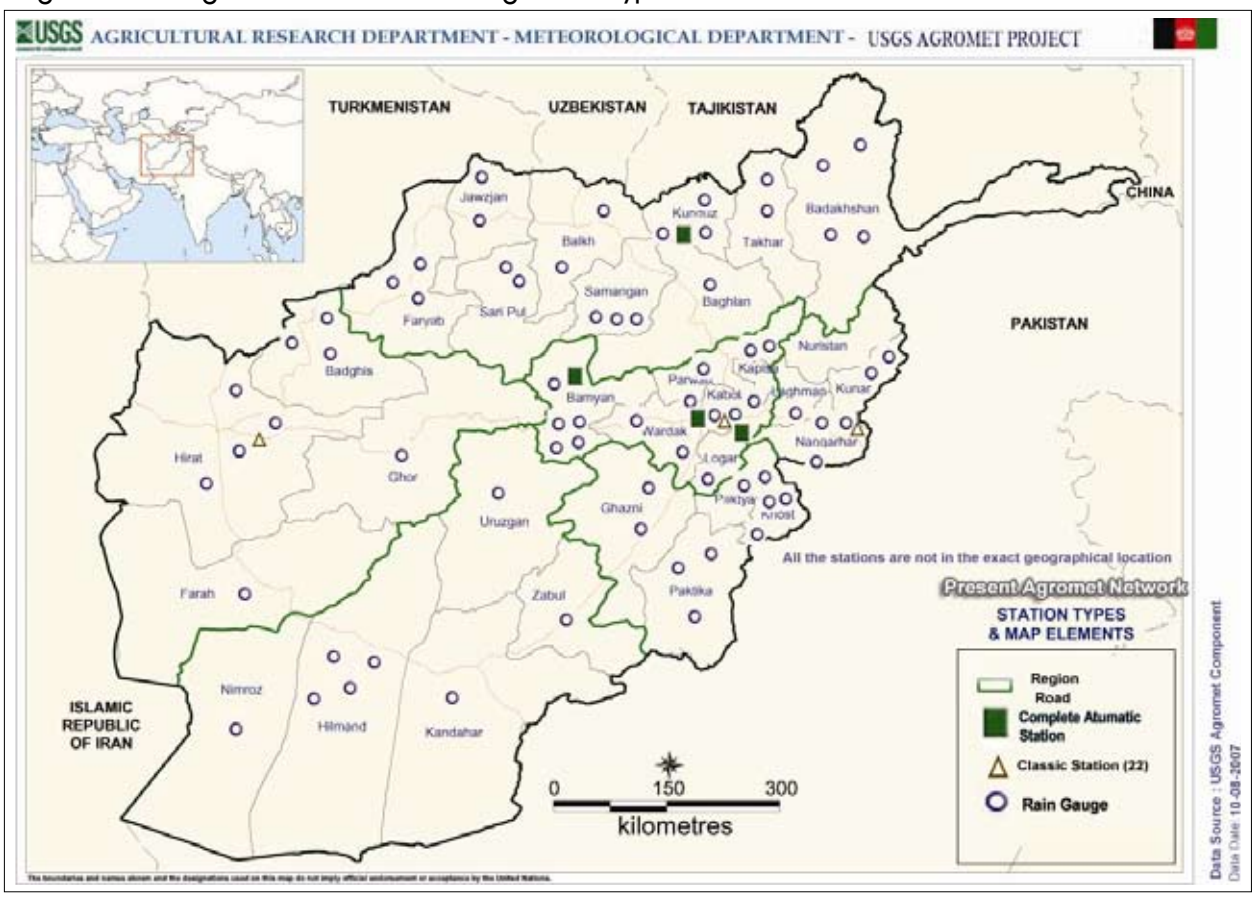
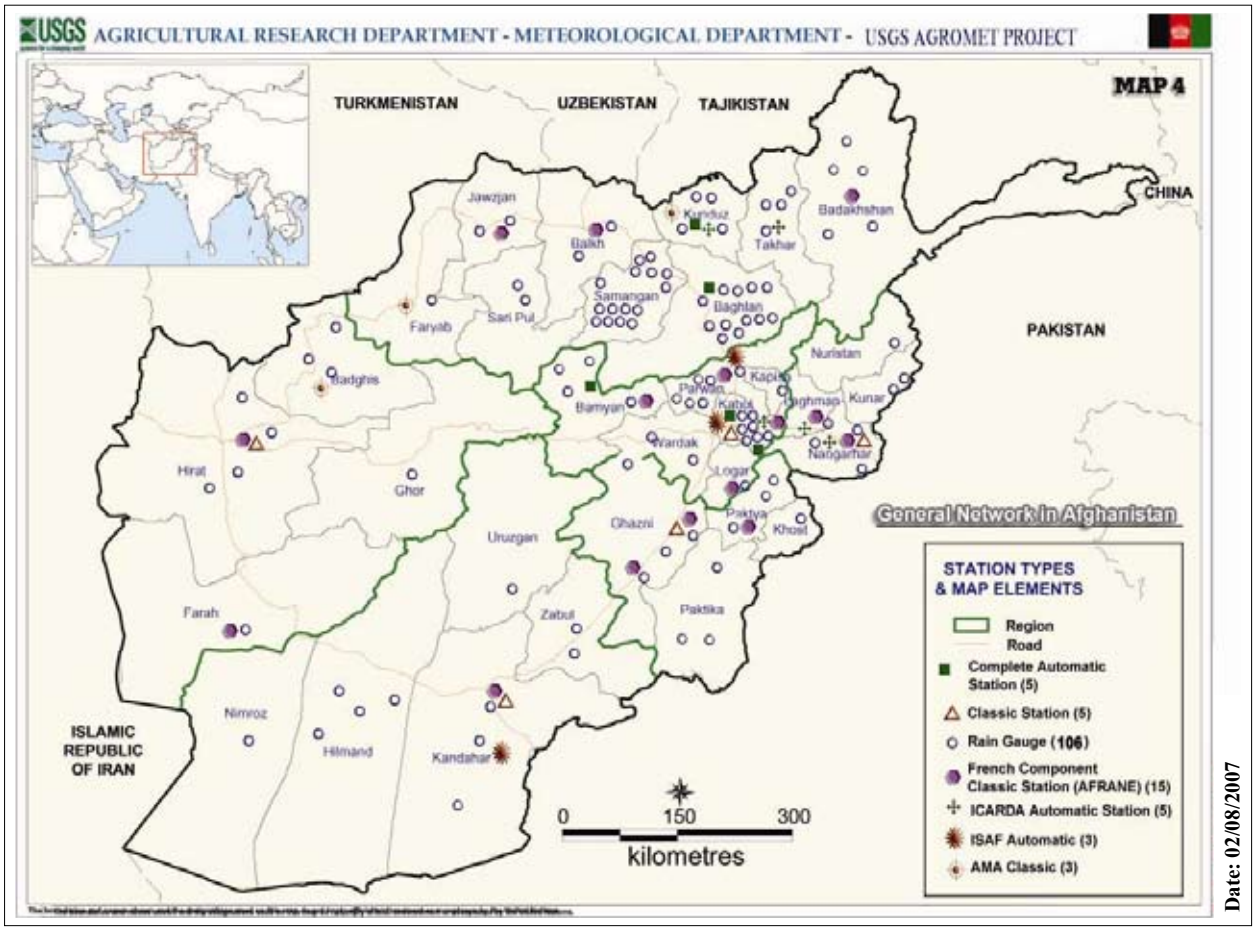


Figure 6. General network, indicating station types



Afghanistan has an arid and semi-arid continental climate with cold winters and hot summers. The climate varies substantially from one region to another due to dramatic changes in topography. The wet season generally runs from winter through early spring, but the country on the whole is dry, falling within the Desert or Desert Steppe climate classification. The snow season averages October-April in the mountains and varies considerably with elevation with very little snow falling in the lowland deserts of the southwest.

On the intermountain plateaus the winds do not blow very strongly, but in the Sistan Basin severe blizzards occur during the winter, generally December through February. In the western and southern regions a northerly wind, known as the "wind of 120 days", blows during the summer months from June to September. This wind is usually accompanied by intense heat, drought and sand storms, bringing hardship to the inhabitants of the desert and steppe lands. Dust and whirlwinds frequently occur during the summer months on the flats in the southern part of the country. Starting midday or early afternoon, these "dust winds" advance at velocities ranging between 97 and 177 kilometers per hour, raising high clouds of dust.[48]

The period 1998 to 2005/6 in Afghanistan marked the longest and most severe drought in Afghanistan's known climatic history. According to the EU Emergency Humanitarian Aid Decision,[49] in general in Afghanistan, based on historical observation, regular cycles of around 15 years are observed, during which one would expect 2-3 years of drought conditions. In recent years, however, there has been a marked tendency for this drought cycle to occur more frequently than the model predicts, and since 1960, the country has experienced drought in 1963-64, 1966-67, 1970-72 and 1998-2006. The failure of rain-fed crops (estimated to constitute up to 80 percent of the cultivated land) was a widespread phenomenon and the livelihoods of millions of rural people, mainly in the north, west and central regions of Afghanistan, were severely marginalized.

Climate normals were computed by Afghanistan ten years ago and provided to the World Meteorological Organization (WMO) for the global standard normals project. The Afghan normals cover the period from 1956-1983 (approximately). Based on the seven stations for which climate normals were provided:[50]

- The average annual precipitation ranges from 5.2 centimeters (2.03 inches) at Zaranj in southwest Afghanistan to 99.2 centimeters (39.06 inches) in the northeast mountains at North Salang.
- Temperatures can vary widely, from as cold as -46°C (51 degrees below zero F) at Chakhcharan (in the north central mountains at an elevation of 2183 m (7162 feet)) to as hot as 51°C (124 degrees F) in the southwestern deserts at Zaranj.
- The mountain valleys can experience, on average, 10 to 30 days per year with snowfall, but the higher passes receive much more snow.
- At an elevation of 3366m (11043 feet), North Salang receives snow, on average, 98 days out of the year with depths reaching as high as 4.5 m (177 inches). Snow has been observed on the ground there as early as August and as late as June.

Table 6 shows the Global Standard Normal (WMO) mean monthly temperature (°C) for each station. It shows clearly that elevation and season strongly influence mean monthly temperature ranging from -11°C (12.2F) at Salang (3366m resp. 11043 feet) in January to + 34 °C (93.2 F) at Farah (700 m resp. 2296 feet) in July.

Table 7 shows WMO Global Standard Normals for mean monthly precipitation (mm) at seven stations. Like temperature, precipitation is strongly influenced by elevation, with the highest mean monthly precipitation of 996 mm (39.2 inches) measured at Salang (3366 m resp. 11043 feet) and the lowest of 97 mm (3.8 inches) at Farah (700 m resp. 2296 feet) .

These trends are further illustrated in the following maps (Figure 7), which indicate maximum temperature and maximum precipitation during the driest and wettest seasons.

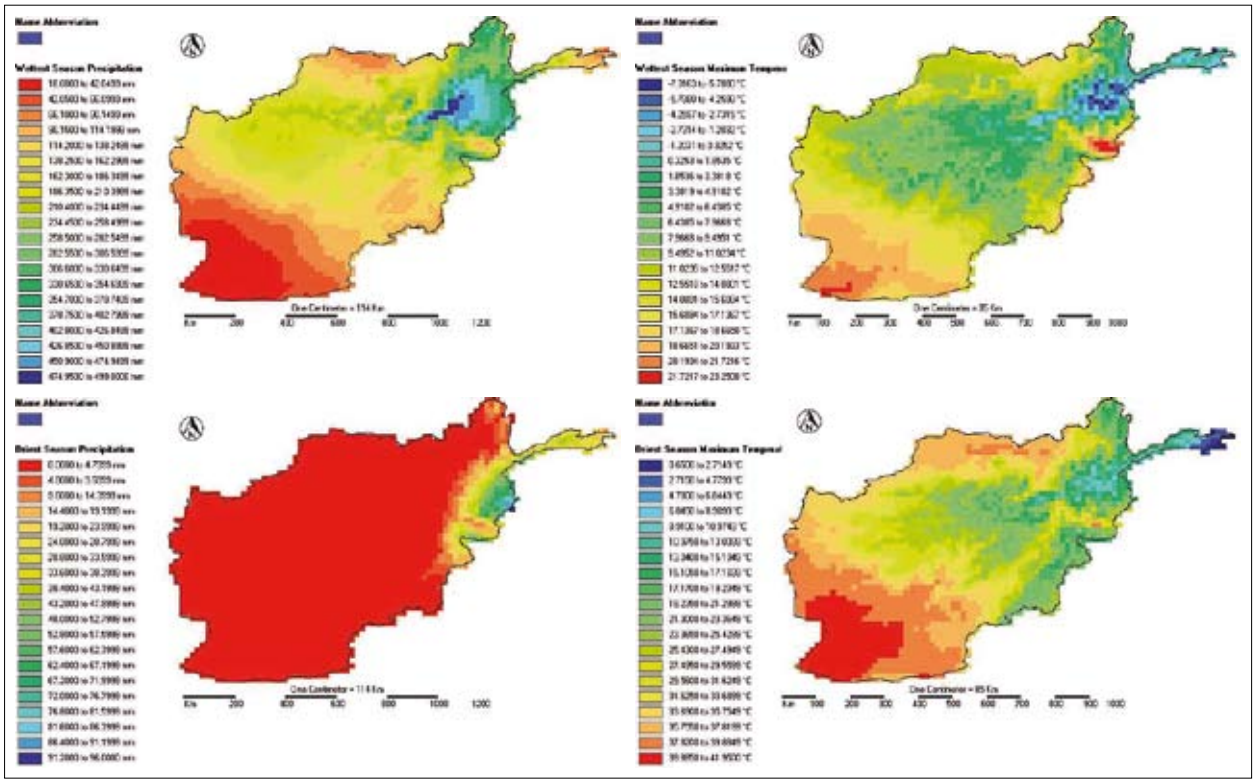
Table 6. World Meterological Office Global Standard Normal Mean Monthly Temperature (C) from seven Afghan Stations, 1956-1983

	Elevation / m	J	F	M	A	M	J	J	A	S	O	N	D	Mean
Herat	964	3	6	10	16	22	30	30	28	23	16	9	4	16
Farah	700	7	10	16	22	27	32	34	32	27	20	13	9	21
Chagcharan	2183	-9	-7	2	9	13	17	19	18	12	7	2	-4	6
Kandahar	1010	5	8	14	20	26	30	32	29	23	18	11	7	19
Kabul	1791	-2	2	6	13	17	23	25	24	19	13	6	1	12
Salang	3366	-11	-9	-6	0	3	8	9	8	4	1	-4	-8	0
Faizabad	1200	0	2	8	14	18	24	27	26	21	8	8	3	13

Table 7. World Meteorological Office Global Standard Normal Mean Monthly Precipitation (mm) from seven Afghan Stations, 1956-1983

	Elevation / m	J	F	M	A	M	J	J	A	S	O	N	D	SUM
Herat	964	51	46	56	28	10	0	0	0	0	3	10	36	239
Farah	700	25	23	23	8	3	0	0	0	0	3	3	10	97
Chagcharan	2183	30	33	41	36	20	0	0	0	0	10	15	18	203
Kandahar	1010	53	43	41	18	3	0	3	0	0	3	8	20	191
Kabul	1791	36	61	69	71	23	0	5	3	3	3	18	23	312
Salang	3366	109	142	185	198	124	10	8	8	8	30	69	104	996
Faizabad	1200	48	66	91	99	76	8	5	0	3	23	30	33	483

Figure 7. Maximum temperature and maximum precipitation during the driest and wettest seasons



8.3 Climate trends and gaps in baseline data

Given the general lack and inaccessibility of data, scarce resources, lack of capacity and trained man-power, projecting climate change in a meaningful and systematic manner is an extremely difficult task in Afghanistan. Historic climatic data has recently been accessed by the PEACE project, albeit with a long gap that accompanies the period of war and conflict in Afghanistan. Researchers working on the PEACE project are currently correcting errors in the data, following which modeling will be realized. This information will contribute significantly to climate knowledge in Afghanistan and will facilitate analysis of climatic trends and potential impacts for the Afghan people and environment.

Gaps in baseline data relating to the climate and climate change in Afghanistan are significant. It is anticipated that some of these gaps will be covered by climatic data that is being compiled and analyzed by the PEACE project. Currently, basic climatic data is being collected although only four out of the fifteen fully automated stations are providing reliable data. To this end, it is necessary to improve the reliability of the fourteen additional stations and expand data analysis capacities. Continued conflict throughout the south and south-east of the country furthermore potentially threatens the continuity of data collection in these regions.

8.4 Key climatic hazards

Key climatic hazards in Afghanistan were identified by CCDP-WG members in a participatory discussion that involved the development of an inventory of common hazards. Each hazard was then critically assessed using criteria and scoring system presented in NAPA documentation (encompassing a subjective assessment of impacts, loss of life, duration, spatial extent, frequency and tendency, see Annex 8),[51] following which detailed discussions facilitated the elaboration of a description of each hazard and a basic assessment of the climatic hazard on the following factors: loss of life and livelihoods; human health; food security and agriculture; environment; water availability, quality and accessibility; and general trends. Furthermore, a five-page briefing note on each of the different climatic hazards was prepared by the WG members. The WG's expert opinions of the effects of each of the hazards are summarized in Table 8.

Collection of fuel wood from already degraded area in Kang District, Nimroz

The sensitivity of ecosystem services, livelihood activities and means of livelihood, to each of the climatic hazards was then assessed by the CCDP-WG. Following the calculation of a preliminary exposure index, a weighting was applied that considered both the physical area affected by the climatic hazard and the importance of the effect. The results of this exercise are illustrated in the following sensitivity matrix (Table 9).

The sensitivity matrix indicates that, generally, droughts, floods due to untimely and heavy rainfall and rising temperatures present the greatest hazards to ecosystem services, livelihood activities and means of livelihood in Afghanistan. In terms of ecosystem services, soil water content, water from irrigation, firewood and grazing are most affected by the climatic hazards. Effects on food crops, market crops and livestock components of livelihood activities are similarly high – to be expected given the importance of these activities to the livelihood portfolio in rural areas of Afghanistan. In terms of livelihood means, irrigated agriculture, livestock herders and dryland farmers are considered the most susceptible to the impacts of the various climatic hazards. Perhaps surprisingly, Kuchi pastoralists were considered to be less negatively affected and this can be attributed to the fact that their mobile lifestyle has traditionally facilitated their adaptation to, and avoidance of, the climatic hazards.[52]

Climate Change and Disaster Preparedness Working Group Meeting, October 2007, Kabul

Table 8. Narrative description of climatic hazards and some of their impacts

Climatic Hazards	Description	Loss of life and livelihoods	Human Health	Duration	Food security and Agriculture	Environmental effects (Biological diversity, forestry)	Water availability, quality and accessibility	Trends
Periodic drought	Decrease in productivity of crops; forced migration; changes in livelihood; decrease in amount of exports; and financial losses.	Group of livestock herders including Kuchi, irrigated agriculturalists and dryland farmers are affected; and around 10,000 casualties per year of severe drought.	Malnutrition, spread of diseases such as malaria, sishnaia, cholera, typhoid, tenasagenata, asscaris and diarrhea.	Up to 8 years	Drought has generated an estimated loss production of: 75% wheat, 85% rice, 85% maize, 50% potatoe and 60% of overall farm production, between 1998 and 2005.	Pistachio, pine nut, wild almond and conifer forest production negatively affected. Waterfowl sanctuaries such as Dasht-i-Nawar, Ab-i-Estada and Kol-i-Hashmat Khan have dried up. Wildlife being displaced.	Decreased availability of under ground water, springs and karezes dry-up, flow of major rivers collapses, degradation of watersheds and drop in level of water reservoirs and dams.	Increasing frequency and intensity.
Floods due to untimely and heavy rainfall	Collapse and sedimentation of irrigation canals; destruction of agricultural lands; loss of crops and livestock; collapse of dwellings; spread of epidemic diseases; destruction of infrastructure such as roads and bridges; and damage to the national economy.	Approximately 750 casualties per year.	Increased incidence of cholera, typhoid, diarrhea and malaria.	3 months	Loss of 10% of agricultural production and gardens that are located alongside rivers and in high risk areas.	Soil degradation; loss of natural forest (riverine forest being particularly affected); increased levels of water siltation and sedimentation; and displacement of wildlife.	Infrastructure damage around US$ 300 million as a result of a severe flood.	Increasing frequency and intensity.
Flooding due to thawing of snow and ice	River levels rise; destruction of riverside agricultural and non-agricultural (forest, range, etc.) lands; land slides; soil erosion; destruction of infrastructure such as bridges and gabions.	Around 100 casualties per year.	Increased incidence of cholera, typhoid, diarrhea and malaria.	4 months	2% damage of agricultural land alongside rivers.	Soil degradation; loss of natural forest (riverine forest being particularly affected); increased levels of water siltation and sedimentation; and displacement of wildlife.	Destruction of river banks,, associated agricultural land and infrastructure at a value of around US$ 400 million as a result of a severe flood.	Increasing frequency
Rise in temprature	Increase in levels of incidence of diseases that affect humans, agriculture and livestock; habitat changes affect wildlife; changes in vegetation cover and associated grazing patterns.	Around 1,000 casualties per year	Increased incidence of malaria, leshmania, typhoid and diarrhea.	3 months	Decreased agricultural, livestock and horticultural production.	Less productivity of natural system, displacement and changing of wildlife habitat.	Increasing evapotranspiration rates; reduction in water level.	Increasing frequency and intensity.
Frost and cold spells	Degradation of fruits, crops, vegetable and health disease, poor economy and increasing of poverty.	Loss of fruits and potatoes; approximately 300 indirect casualties per year.	Illnesses associated with cold weather.	3 days, two times per year	20% of gardeners in the country are affected, particularly those with horticultural crops.	Affects forest rehabilitation and afforestation programs (particularly nurseries and saplings).	Low impact.	Increasing frequency and intensity.
Hail, thunder and lightening	Destruction of crops (particularly horticultural crops); human and livestock losses; and outflow/gush from floods.	Approximately 150 casualties per year.	Illnesses associated with cold weather.	Around 20 days	Up to 20% loss in horticultural and crop production.	Low impact.	Low impact.	Increasing frequency and intensity.
Monsoon and 120-day winds	Desertification; degradation of agricultural lands and crops; destruction of infrastructure; air pollution; spread and transmission of diseases and respiratory problems; sedimentation of irrigation systems and springs; local and national economy negatively affected.	Around 10 casualties per year.	Eyes, respiratory and skin diseases.	120 days	Decrease in horticultural and crop production, degradation of rangeland and reduced livestock production.	Desertification; decreased plant cover.	Losses (temporary and more permanent) of infrastructure, siltation of water sources, decreased quality of water.	Increasing frequency and intensity.

Table 9. Sensitivity matrix for resources and groups to climate change

	Climatic Hazards							Preliminary exposure index	Weighting - area affected / importance	Final score
	Periodic drought	Floods due to untimely and heavy rainfall	Flooding due to thawing of snow and ice	Rise in temprature	Frost and cold spells	Hail, thunder and lightening	Monsoon and 120-day winds			
Ecosystem Services										
Soil water content	5	2	4	4	1	2	3	60	1	60
Water from irrigation	5	3	1	3	1	1	2	46	0.8	37
Fuelwood	4	3	1	2	1	2	3	46	0.8	37
Grazing	5	3	2	4	1	2	3	57	0.7	40
Fodder	4	3	2	3	1	3	3	54		0
Wild fruit production	4	1	1	3	3	2	2	46		0
Wildlife	4	3	2	4	1	2	2	51		0
Medicinal plants	4	3	2	3	1	3	2	51	0.4	21
Pollination	4	3	1	1	4	4	3	57	0.2	11
Livelihood Activities										
Food crops	4	4	4	3	3	4	3	71	1	71
Market Crops	5	4	3	3	5	4	3	77	0.5	39
Livestock	5	3	2	4	2	1	2	54	0.9	49
Wood	4	3	1	2	1	2	3	46	0.8	37
Daily wage labours	5	2	1	3	1	1	2	43	0.8	34
Useful Insects	5	2	1	4	4	3	4	66	0.2	13
Trade	4	4	3	3	3	3	2	63	0.5	31
Means of livelihood										
Dryland farmers	5	4	3	4	1	3	4	69	0.7	48
Irrigated agriculture farmers	5	4	4	3	4	4	3	77	1	77
Livestock herders	5	3	3	4	2	2	2	60	0.9	54
Pastoralists (Kuchi)	5	4	3	4	1	3	3	66	0.5	33
Poppy growers	2	3	3	1	3	4	2	51	0.8	41
Impact index	89	61	45	62	42	52	53			
Weighting - area affected	1.0	0.8	0.6	0.8	0.7	0.4	0.4			
Final score	89	49	27	50	29	21	21			
High priority								Weighting scale ranging from 1 (low impact) to 5 (high impact)		

8.5 NAPA Vision

The NAPA vision for Afghanistan is to increase awareness amongst all stakeholders of the effects of climate change and climate variability on their lives and to develop specific activities that build capacity to respond to current and future climate change threats.

8.6 Objectives of NAPA

The objectives of the Afghanistan NAPA are to:

- Identify priority projects and activities that can help communities adapt to the adverse effects of climate change;
- Seek synergies with existing MEAs and development activities with an emphasis on both mitigating and adapting to the adverse effects of climate change; and
- Integrate climate change considerations into the national planning processes.

8.7 Strategies of NAPA

Through closely adhering to the guidelines for the preparation of the NAPA,[53] the Afghanistan process has been guided by the following principles:

- *Multidisciplinary*: The CCDP-WG represented various sectors of the government, and the

NAPA and NCSA Regional Workshop in Herat September 2007, with farmers and livestock herders from Herat, Badghis and Farah

four regional workshops included the presence of farmers from settled agriculture, livestock, rainfed agriculture, and pastoralist livelihoods. This ensured the expression and consideration of multiple perspectives in the analysis realized.

- *Participatory approach*: Regional consultations were undertaken in four locations and persons from eleven provinces participated. This allowed for the inclusion of stakeholder views and also increased Afghan ownership of the process.

- *Synergy generating*: National development strategies formed the framework for the NAPA process and synergies with other multilateral environmental conventions was one of the indicators used when prioritizing project profiles. The recommendations presented here therefore aim to be highly complementary and synergy generating.

- *Sustainable development*: Poverty reduction to enhance adaptive capacity formed one of the four criteria used to prioritize and select project profiles.

- *Gender component*: Although the Ministry of Women's Affairs was invited to participate in the CCDP-WG, they declined to participate. Furthermore, given the cultural constraints associated with involving women in public events with a high male presence, they did not participate in the regional workshops. NCSA questionnaires were distributed to and completed by the Ministry/ Department of Women's Affairs at national and provincial levels for completion and return to UNEP.

- *Country driven approach*: The information generated by the CCDP-WG and in the Regional Workshops has formed the basis for this present report.

- *Cost effectiveness*: Cost effectiveness was one of the indicators used when prioritizing project profiles.

- *Simplicity*: The NAPA process aims to have a simple and clear approach to addressing adaptation to climate change.

8.8 Summary

Information about climate and climate change in Afghanistan is currently limited. International organizations are currently working together with the Afghan Government to review and revise existing, currently un-digitalized, historic climatic data in an important process that will contribute significantly to knowledge on climate change.

Participatory exercises with the CCDP-WG facilitated the collection and discussion of expert opinion on major climatic hazards and their effects on the country. This process resulted in the conclusion that periodic drought, floods due to untimely and heavy rainfall, and rising temperatures present the greatest hazards to ecosystem services, livelihood activities and means of livelihood in Afghanistan. The general opinion of the CCDP-WG was that both the severity and frequency of such events are increasing.

9 Identification of Key Adaptation Needs

9.1 Introduction

Chapter 9 will identify the sectors and groups that are most vulnerable to climate change and that require adaptation. Potential adaptation options identified by the CCDP-WG are then detailed, followed by a description of the process used to short-list the two most important of these. The Chapter concludes by identifying potential barriers to implementation of the adaptation options.

9.2 Sectors and groups in need of adaptation

Adaptation is a process by which individuals, communities and countries seek to cope with the consequences of climate change. It refers to all of the responses to climatic conditions that may be used to reduce vulnerability. The principle forms of adaptation initiatives to climate change are guided by:

- *National priorities*: guided by the needs of the country and the vulnerable groups, resources and regions at risk, with the support of national infrastructure and institutional capacities that are required for the increase and maintenance adaptive capacities;
- *Urgent priorities*: related to the sustainable management of resources in relation to current climate risks or climatic constraints (i.e. thresholds);
- *Strategic priorities*: dependent on increasing resilience and adaptive capacities of populations in order to better cope with climate related hazards; and
- *Development priorities*: integration of climate response strategies into development policies and poverty alleviation.

In order to assess the vulnerability of seven major sectors to climate change, a matrix was developed with the following specifications:

- Sectors vulnerable to climate change;
- Socio-economic index of each sub-sectors which the socio-economic index is calculated based on the following formulae: Socio-economic index = 0.3 * Socio index + 0.7 * Economic index;[54]
- The impact of major climatic and climate induced parameters were assessed through the expert judgment and Thomas Saaty weighting method; and
- The vulnerability index for each sector was calculated as the sum product of socio-economic index and sub-sectors vulnerability rank on climatic parameters.

The summarized results of vulnerability assessment for Afghanistan are shown in Figure 8 and Figure 9 (detail presented in Annex 9). Figure 8 indicates that the water resources, forestry and rangeland, and agriculture sectors, with -338, -323 and -286, are the sectors most vulnerable to climate change, respectively. Comparatively, climate change was assessed as having low adverse impacts on the energy and waste sectors. Figure 9 disaggregates 'climate change' into four factors - increased temperature, evapo-transpiration and salinity, precipitation channel change, and drought – and analyzes their impact on the seven sectors.

In view of the discussions realized in the CCDP-WG, briefing notes summarizing livelihood characteristics, information on climate-related hazards, and expert opinion on climate change and variability, we can conclude that:

Figure 8. Vulnerability rank of sectors to climate change

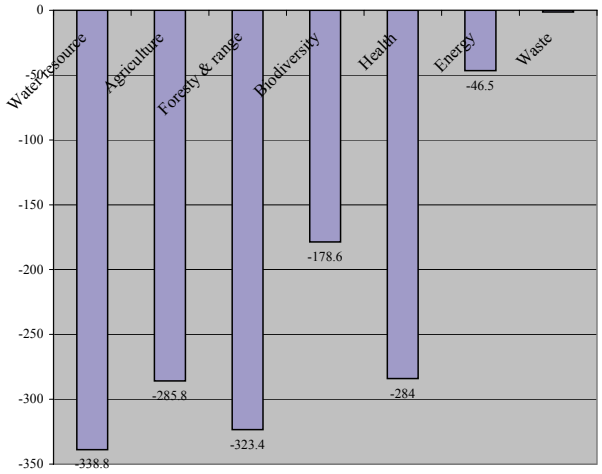
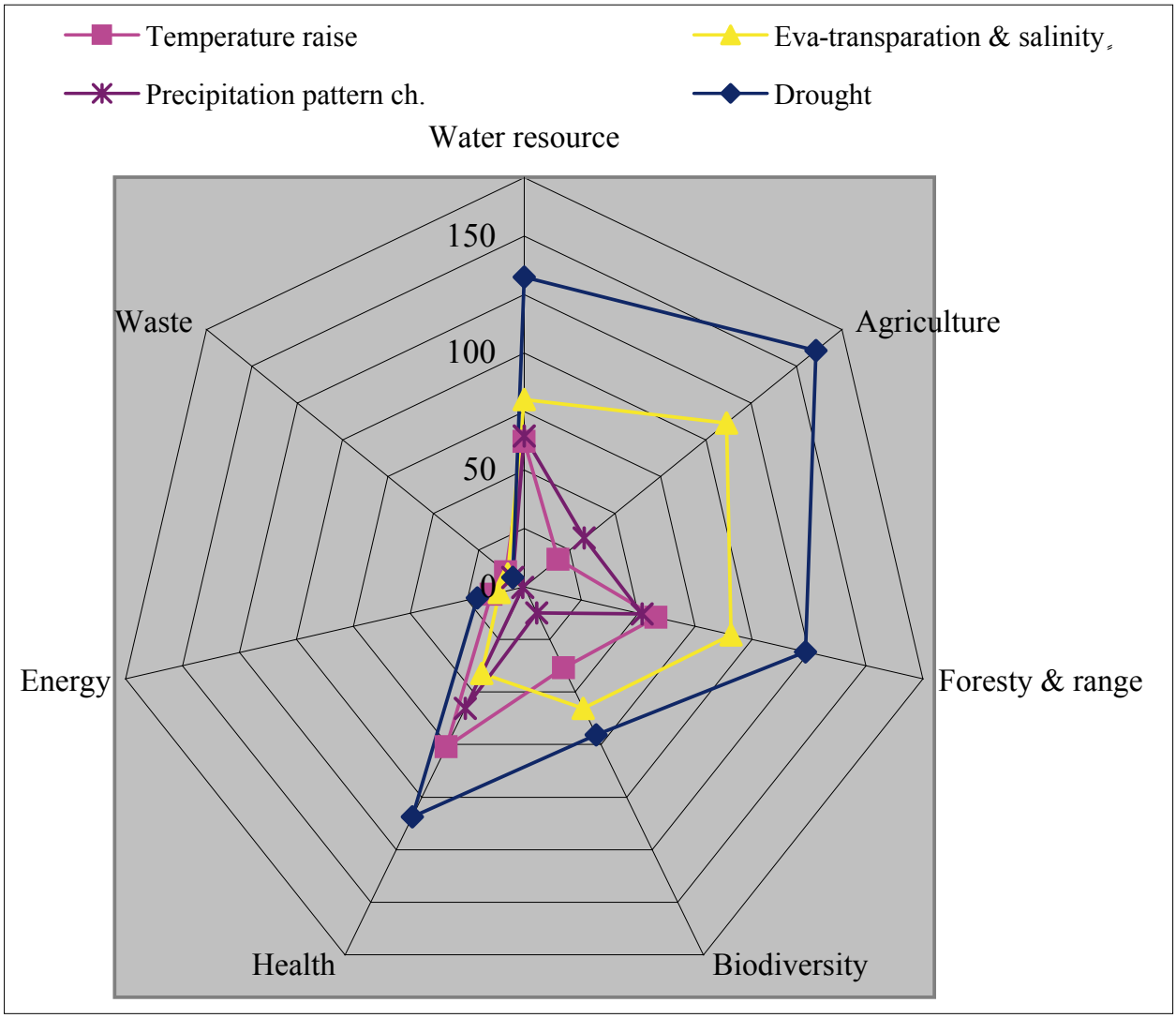


Figure 9. The vulnerability of different sectors to climatic and climate induced parameters change



- The most likely adverse impacts of climate change in Afghanistan are drought-related, including associated dynamics of desertification and land degradation. Floods due to untimely rainfall and a general increase in temperature are of secondary importance, but are both exacerbated by and exacerbate the adverse impacts of drought.

- The most vulnerable sectors are Water Resources, Forestry and Rangeland, and Agriculture, as primary production is limited by rainfall and the long, hot summers. Since an estimated 75 percent of the Afghan population lives in rural areas,[55] crop failure, reduced yields and stress on livestock will affect the most vulnerable households in the community and therefore the poorest sectors of the Afghan population.

- It follows that the most vulnerable communities are the rural poor who depend directly on crops, livestock and water resources, particularly those with a little diversified income portfolio and weak social safety nets.

- Although it is possible to make some general observations concerning the impacts of climate change within the household, the most vulnerable members and the degree of the impact varies according to ethnic group. Generally speaking, however, women are extremely vulnerable given their general immobility and dependence upon the male members of the household (this being an issue that extends well beyond climate change). It has been noted that, during periods of drought, young women and children may be sold into marriage so that their families can afford to eat. Children are also highly vulnerable to climate change, given that they are widely responsible for realizing small scale livestock herding and collection of firewood.

9.3 Potential adaptation options

A total of 51 potential adaptation options were identified by the CCDP-WG. These were categorized according to seven broad themes: human health; water resources and renewable energy; agriculture and food security; animal husbandry, grazing and rangelands; forests and biodiversity; natural disaster preparedness and infrastructure; and capacity building. They are listed fully in Annex 9.

9.4 Evaluation criteria

The CCDP-WG agreed to apply an adapted Multi-Criteria Analysis (MCA) technique to the full list of potential adaptation options in order to reach consensus on the selection of the top priority NAPA projects. Firstly, four general criteria were used to screen and select priority adaptation activities:

- Level or degree of adverse effects of climate change;
- Poverty reduction to enhance adaptive capacity;
- Synergy with other multilateral environmental agreements; and
- Cost effectiveness.

For each of the potential adaptation activities proposed, the group rated it against each of these four criteria. Using a consensus based approach they were able to eliminate project ideas that failed to meet one or more of the above criteria. The four general criteria were therefore used to narrow down the total list of proposed activities from an initial list of 51 adaptation activities from seven sectors (as presented in Annex 10) to a list of 11 general activities, as shown in Table 10. These project concepts primarily related to the two climatic hazards of drought and flooding.

In the second step of the selection process, the CCDP-WG employed a second set of criteria (based upon those suggested in NAPA guidelines), listed in continuation:

1) Loss of life;
2) Human health;
3) Food security
4) Agriculture;
5) Water availability, quality and accessibility;
6) Impact on vulnerable groups;
7) Essential infrastructure;
8) Cost of the project;
9) Biological diversity; and
10) Land use management and forestry

These criteria were weighted, as indicated in Table 11.

Evaluating and presenting potential adaptation options, July 2007, Kabul

Table 10. Eleven project concepts and titles, as identified in the first ranking exercise

Outline of project concept	Summary Title
Improved water management and use efficiency through the introduction of drip and sprinkler irrigation, improved physical structures and increased public awareness.	Improved Water Management and Use Efficiency
Research into drought resistant seeds, different varieties of plants and livestock and plant protection; including establishment of agricultural farms.	Agricultural Research
Improved livestock production through the creation of livestock unions, cooperatives and associations; introduction of improved species and veterinary services.	Improved Livestock Production
Development of horticulture through use of improved varieties, establishment of nurseries and plant protection.	Development of Horticulture
Improving food security measures through diversification; promotion of household level industries, including chicken farms, beekeeping and silk farms; and development of market potential for agricultural products.	Improved Food Security
Rangeland management, including development and implementation of systems of rotational grazing and production of improved fodder along grazing routes (mixed grasses, legume).	Rangeland Management
Create more off-farm or cash earning job opportunities for farmers who are affected by crop loss due to climate change effects.	Creation of Off-farm Employment
Installation of agro-meteorological stations, early warning system, hazard mapping; survey, assessment and projection of the impact of deep wells on the water table and future water supplies. Build capacity and expertise for assessment of climate change adaptations, including technical capacity to monitor and analyze climatic trends, plan and implement adaptation activities, improve forecasts and inform policy makers.	Climate-Related Research and Early Warning Systems
Disaster management strategy – planning for food security and emergency supplies to vulnerable communities.	Development of Disaster Management Strategy
Land and water management at the watershed level. Community based forest management and afforestation projects in ways that conserve land, water resources and wood production; realize afforestation of catchment areas and stabilization of unstable slopes; soil conservation techniques.	Land and Water Management at the Watershed Level
Terracing, agroforestry and agro-silvo pastoral systems that reduce soil erosion and run-off on steep slopes; conserve land, water resources and wood production; soil conservation techniques.	Improved Terracing, Agroforestry and Agro-silvo Pastoral Systems

Table 11. Weighting given to the second set of criteria to be used in screening potential adaptation activities

Proposed criteria	Weighting by WG	Equal weighting
Loss of life	0.14	0.1
Human health	0.13	0.1
Food security	0.12	0.1
Agriculture	0.12	0.1
Water availability, quality and accessibility; water use efficiency	0.13	0.1
Impact on vulnerable groups	0.12	0.1
Essential infrastructure	0.03	0.1
Cost effectiveness of the project	0.07	0.1
Biological diversity	0.06	0.1
Land use management and forestry	0.08	0.1
Total	1	1

9.5 Shortlist and selection of proposed adaptation activities

The two short-listing processes resulted in the selection of two priority projects for which basic project outlines were elaborated. The results of this process are illustrated in Table 12. As can be noted from the scores presented, the weighting of the criteria did not affect the overall outcome of the exercise. In both instances, the projects *Improved Water Management and Use Efficiency* and *Land and Water Management at the Watershed Level* were identified as priority for facilitating adaptation to climate change. They were closely followed by *Development of Horticulture* and *Improved Terracing, Agroforestry, and Agro-silvo Pastoral Systems*.

9.6 Relation of NAPA to Afghanistan's Development Goals

The adaptation responses identified in the NAPA framework for Afghanistan are closely linked to the interim-ANDS (i-ANDS) strategy and Ministry policies, programs and activities. The ANDS

Discussion of potential adaptation options by representatives of farmers and livestock herders from Parwan province, Workshop organized in Kabul in October 2007

is divided into three pillars – (1) security, (2) governance, rule of law, and human rights, and (3) economic and social development. With more than 43 benchmarks across these pillars, the ANDS organizes priority national reforms into eight sectors and five cross-cutting areas. More detail is provided on the linkage between these and the environment in Chapter 4.2, section on the Afghanistan National Development Strategy.

The ANDS has a "pro-poor" approach that aspires to reflect the multidimensional nature of poverty, and to develop policies that benefit the poor by reducing inequalities and encouraging growth with pro-poor income distribution. The strategy identifies several cross-cutting issues relevant for NAPA, including empowerment of vulnerable sectors of society by provision of roads, health care, education, electricity and systems of governance that increase decision making papers at community / village levels. The ANDS will form the country's first Poverty Reduction Strategy Paper (PRSP), an instrument required for World Bank and International Monetary Fund Highly Indebted Poor Country assistance and relief.

9.7 Potential barriers to implementation

Afghanistan, facing major developmental challenges and being ranked 174 out of the 178 countries on the 2007 Human Development Index, has very limited internal capacity to fund and implement adaptation activities. In summary, the major barriers to NAPA activities are:

- Lack of capacity in terms of human resources;
- Low levels of awareness of the current and potential impacts of climate change;
- Limited access to arid and semi-arid zones in the south and the south-west due to a combination of physical isolation and ongoing conflict;
- Difficulty to adequately address (and institutionalize) environmental issues in the face of other pressing development challenges;
- Limited analytical capability, especially for analyzing climatic data to assess threats and potential impacts, and develop viable solutions; and
- Limited resources, as funds of donor partners are currently overstretched addressing other priority issues that include security, health, education, gender, conflict resolution and agricultural development, amongst others.

Table 12. Detailed ranking of short-listed projects

	Loss of life			Human health			Food security			Agriculture			Water availability, quality and accessibility; water use efficiency		
Summary Title	**No weighting**	**With standard weighting of 0.1**	**With weighting of 0.14**	**No weighting**	**With standard weighting of 0.1**	**With weighting of 0.13**	**No weighting**	**With standard weighting of 0.1**	**With weighting of 0.12**	**No weighting**	**With standard weighting of 0.1**	**With weighting of 0.12**	**No weighting**	**With standard weighting of 0.1**	**With weighting of 0.13**
Improved Water Management and Use Efficiency	5	0.5	0.7	5	0.5	0.65	5	0.5	0.6	5	0.5	0.6	5	0.5	0.65
Agricultural Research	1	0.1	0.14	3	0.3	0.39	5	0.5	0.6	5	0.5	0.6	5	0.5	0.65
Improved Livestock Production	1	0.1	0.14	3	0.3	0.39	3	0.3	0.36	1	0.1	0.12	1	0.1	0.13
Development of Horticulture	1	0.1	0.14	3	0.3	0.39	5	0.5	0.6	5	0.5	0.6	3	0.3	0.39
Improved Food Security	1	0.1	0.14	5	0.5	0.65	5	0.5	0.6	1	0.1	0.12	1	0.1	0.13
Rangeland Management	1	0.1	0.14	3	0.3	0.39	3	0.3	0.36	3	0.3	0.36	3	0.3	0.39
Creation of Off-farm Employment	1	0.1	0.14	1	0.1	0.13	3	0.3	0.36	3	0.3	0.36	1	0.1	0.13
Climate-Related Research and Early Warning Systems	1	0.1	0.14	1	0.1	0.13	3	0.3	0.36	3	0.3	0.36	1	0.1	0.13
Development of Disaster Management Strategy	3	0.3	0.42	5	0.5	0.65	3	0.3	0.36	3	0.3	0.36	1	0.1	0.13
Land and Water Management at the Watershed Level	1	0.1	0.14	3	0.3	0.39	3	0.3	0.36	5	0.5	0.6	5	0.5	0.65
Improved Terracing, Agroforestry and Agro-silvo Pastoral Systems	1	0.1	0.14	1	0.1	0.13	3	0.3	0.36	5	0.5	0.6	5	0.5	0.65

Table 12 (cont.). Detailed ranking of short-listed projects

Impact on vulnerable groups			Essential infrastructure			Cost effectiveness of the project			Biological diversity			Land use management and forestry						
No weighting	With standard weighting of 0.1	With weighting of 0.12	No weighting	With standard weighting of 0.1	With weighting of 0.03	No weighting	With standard weighting of 0.1	With weighting of 0.07	No weighting	With standard weighting of 0.1	With weighting of 0.06	No weighting	With standard weighting of 0.1	With weighting of 0.08	Totals with equal weighting	Ranking	Totals with weighting applied	Ranking
5	0.5	0.6	3	0.3	0.09	5	0.5	0.35	5	0.5	0.3	5	0.5	0.4	**4.8**	**1**	**4.94**	**1**
3	0.3	0.36	3	0.3	0.09	3	0.3	0.21	3	0.3	0.18	3	0.3	0.24	**3.4**	**5**	**3.46**	**5**
3	0.3	0.36	3	0.3	0.09	1	0.1	0.07	1	0.1	0.06	3	0.3	0.24	**2**	**9**	**1.96**	**9**
5	0.5	0.6	5	0.5	0.15	5	0.5	0.35	3	0.3	0.18	5	0.5	0.4	**4**	**3**	**3.8**	**3**
3	0.3	0.36	3	0.3	0.09	1	0.1	0.07	5	0.5	0.3	1	0.1	0.08	**2.6**	**8**	**2.54**	**8**
1	0.1	0.12	3	0.3	0.09	5	0.5	0.35	5	0.5	0.3	5	0.5	0.4	**3.2**	**6**	**2.9**	**6**
3	0.3	0.36	1	0.1	0.03	3	0.3	0.21	1	0.1	0.06	1	0.1	0.08	**1.8**	**10**	**1.86**	**10**
1	0.1	0.12	1	0.1	0.03	3	0.3	0.21	1	0.1	0.06	1	0.1	0.08	**1.6**	**11**	**1.62**	**11**
5	0.5	0.6	5	0.5	0.15	1	0.1	0.07	1	0.1	0.06	1	0.1	0.08	**2.8**	**7**	**2.88**	**7**
5	0.5	0.6	3	0.3	0.09	5	0.5	0.35	5	0.5	0.3	5	0.5	0.4	**4**	**2**	**3.88**	**2**
5	0.5	0.6	3	0.3	0.09	5	0.5	0.35	5	0.5	0.3	5	0.5	0.4	**3.8**	**4**	**3.62**	**4**

10 Priority NAPA Projects

10.1 Project profiles

From the short-listed projects, the top two priority activities were developed into brief project profiles that include project rationale or justification, objectives, inputs, short-term outputs, potential long-term outcomes, institutional arrangements, risks and barriers, monitoring and evaluation, and an estimated budget.

10.2 First project profile Title: Improved water management and use efficiency

Rationale/ justification in relation to climate change

The most significant climatic hazard facing Afghanistan is that of drought. The balance between precipitation and primary productivity is precarious and in much of the country, agricultural production is limited by both the level of precipitation and the length of the dry summer. Drought ultimately endangers the viability of rural livelihoods frequently decimating entire families and communities, both forcing migration to urban centers in search of work and generating an increase in illegal activities as a switch is made to opium poppy, a crop that resists drought and for which traders provide loans and inputs.

Water is thus a key issue in the livelihoods of Afghan farmers. On an annual basis, it is not sufficient for human consumption, personal hygiene and preventative health care, crop production and animal husbandry. Irrigation water in particular is an extremely precious resource, especially during the hot, dry summers and years of periodic drought. At the same time, inappropriate practices mean that irrigation practices in rural Afghanistan frequently do not result in the most efficient use of water. Together with increases in population density and decreased water availability, families and communities are increasingly boring every-deeper deep wells. This is having an overall impact on the level of the underground water table and is of questionable sustainability over the longer term.

In order to reduce vulnerabilities to low and fluctuating levels of precipitation, it is imperative to increase the efficiency of water use through improved water management and irrigation systems.

Poorly managed irrigation system in Herat

Objectives

Overall objective

The overall objective of this project will be to reduce livelihood vulnerability in drought-affected communities through improved water management and use efficiency.

Specific objectives

The specific objectives of the project are as follows:

- Mainstreaming of climate change and water management issues at a national level;
- Introduction and adoption of water-saving irrigation methods, including drip irrigation, and improved canal systems and water storage facilities in target project areas;
- Water distribution technologies such as water collection and storage;
- Fully formed and functioning Community Water Resource Management Associations taking wise decisions about water resource use and management and facilitating the resolution of associated conflicts;
- Local familiarity with, and utilization of, efficient water use technologies increased; and
- Public awareness with regards to water resource use and demand side management increased.

Description

Activities

- Mandates of MAIL, MRRD and NEPA strengthened with special reference to climate change and water management, and appropriate tools and guidelines developed to enhance analytical skills and inter-sectoral approaches;
- Survey of water vulnerable areas, identification of target communities for project implementation. Compilation of data, including mapping, GIS systems and database development;
- Realization of participatory discussions with community members to plan and elaborate project implementation plan;
- Procurement of equipment and other inputs required for the implementation of the project;
- Implementation of project, including:
  - Creation and/ or institutional strengthening of water management associations;
  - Introduction of drip irrigation;
  - Construction of water storage systems and improvement of karezes and canals;
  - Investigation of the short and longer term impacts of deep wells on the water table;
  - Training and capacity building in efficient water resource use and management; and
  - Public awareness raising activities.
- Provision of technical support and capacity building to stakeholders including Government (supporting community-based water management projects) and community (conflict resolution and management, maintenance of irrigation systems, etc.).

Inputs

Inputs include technical and financial assistance, equipment and institutional support.

Short-term outputs

- Water use efficiency improved thereby decreasing the vulnerability of rural livelihoods;
- Stability of agricultural, dairy and fruit production increased;
- 20 Community Water Resource Management Associations established and fully functioning;
- Irrigation systems rehabilitated and improved;
- Information on the potential impacts of deep wells on the water table and future supplies of water;
- Farmers in target project areas with technical capacity to improve water use efficiency, including knowledge of drip irrigation; and
- Improved understanding of the importance of water management.

Long-term outputs

- Vulnerability of rural livelihoods in target areas decreased through improved levels of food security;

- Participation in the cultivation of illegal crop reduced;
- Government staff at a local level experienced in managing both the technical and socio-organizational aspects of water resource management at the community level;
- Improved water management and associated benefits observed and adopted by neighboring communities;
- Animal husbandry strengthened as rural people are more likely to make longer-term investments; and
- Local and national economy strengthened.

Implementation

Institutional or administrative / organizational arrangements

The project will be implemented by MAIL, in partnership with NEPA, the MWE, and local communities. Given that the achievement of project results hinges upon effective community participation, the local Community Water Resource Management Associations will be of fundamental importance to successful project implementation. Technical and managerial support for the implementation of this project will be provided by the local UNEP-Kabul office.

Risks and barriers

The primary risks and barriers that challenge the implementation of this project relate to a shortage of in-country expertise on improved water use and management efficiency. This is augmented by a situation of weak institutionality and a lack of specialized equipment. Given that water is such a precious resource for the Afghan people, it is likely that conflicts over water use and management will also emerge from time to time, representing challenges to the development of a coordinated water management system.

Evaluation and monitoring

Evaluation and monitoring of the project will begin with the development of a comprehensive baseline against which key indicators can be monitored. A monitoring system will then be established that adopts a three-tiered approach involving the Government, UNEP and the local community.

Financial resources

The total value of additional costs required to implement this project is US$2,200,000.

Length of Project

The project will be implemented over a three year period.

10.3 Second project profile Title: Community based watershed management

Rationale/ justification in relation to climate change

Watershed degradation in Afghanistan is widespread. Short-term management decisions taken by those living in the upper watershed have negative consequences for downstream landholders. Deforestation, overgrazing and trampling simultaneously decrease water percolation and increase run-off and levels of erosion, negatively affecting the productivity of the land in this area. At the same time, downstream landholders are thus subjected to increased frequency and severity of flooding, siltation of irrigation systems, and high variation in water flows.

Water is thus a key issue in the livelihoods of Afghan farmers. On an annual basis, it is not sufficient for human consumption, personal hygiene and preventative health care, crop production and animal husbandry. Experiences elsewhere suggest that a holistic approach with the watershed at the intervention, planning, management and community participation unit has high potential for long-term and sustainable success of environmental management and development interventions.

This project will therefore focus on realizing a holistic intervention in specific watersheds or sub-watersheds. Activities realized will address deforestation and destruction of land cover, soil erosion through wind and rain, flooding, and uncoordinated natural resource management decisions between people living in the upper and lower sections of the watershed.

Degraded watershed in Sar-Rostaq, Takhar

Objectives

Overall objective

The overall objective of this project will be to improve livelihood quality at the watershed level through improved natural resource use and management.

Specific objectives

The specific objectives of the project are as follows:

- Mainstreaming of climate change and watershed management issues at a national level;
- Fully formed and functioning Watershed Management Committees realizing highly participatory and integrated management of natural resources at a watershed level;
- Livelihood security improved through planned natural resource utilization and rehabilitation of degraded areas;
- Community members possess sufficient technical and socio-organizational knowledge to be able to take wise decisions natural resource management at the watershed level; and
- Public awareness with regards to sustainable natural resource use and management increased.

Description

Activities

- Mandates of MAIL, MRRD and NEPA strengthened with special reference to climate change and community-based watershed management, and appropriate tools and guidelines developed to enhance analytical skills and inter-sectoral approaches;
- Survey of resource use, livelihood characteristics and natural resource status. Compilation of data, including mapping in GIS system;
- Realization of participatory discussions with community members to develop and elaborate project implementation plan;
- Procurement of equipment and other inputs required for the implementation of the project;
- Implementation of project, including:
  - Creation and institutional strengthening of Watershed Management Committees;
  - Design and implementation of rotational grazing system;
  - Improvement of water-related infrastructure, including construction of water storage systems and improvement of karezes and canals;
  - Design and construction/ implementation of soil conservation structures;
  - Realizing of interventions that improve livestock quality;
  - Designation of protected areas within the watershed;
  - Training and capacity building in sustainable natural resource management and the implications of non-sustainable management; and
  - Public awareness raising activities.
- Provision of technical support from responsible and stakeholder institutions.

Inputs

Inputs include technical and financial assistance, equipment and institutional support.

Short-term outputs

- Detailed knowledge about resource use, livelihood characteristics, natural resource status at the watershed level, and social organization;
- Improved coordination in watershed management;
- Increased stability of agricultural, dairy and fruit production;
- 20 Watershed Management Committees established and fully functioning;
- Irrigation systems rehabilitated and improved;
- Rotational systems of grazing introduced and utilized;
- Specific activities to increase the value of agricultural production at the watershed level undertaken; and
- Improved understanding of the importance of integrated watershed management.

Degraded watershed in Sar-Rostaq, Takhar: unstable uplands are eroding into lower agricultural lands

Long-term outputs

- Vulnerability of rural livelihoods in target areas decreased through integrated watershed management;
- Downstream effects of unsustainable natural resource use and management in the upper watershed are reduced;
- Strengthened local governance systems;
- Government staff at a local level experienced in managing both the technical and socio-organizational aspects of community-based watershed management;
- Improved natural resource management with associated benefits being observed and adopted by neighboring communities;
- Animal husbandry strengthened and associated production levels increased as rural people are more likely to make longer-term investments; and
- Local and national economy strengthened.

Implementation

Institutional or administrative / organizational arrangements

The project will be implemented by MAIL in partnership with NEPA, and local communities. Given that project results hinge upon effective community participation, the local Watershed Management Committees will be of fundamental importance to successful project implementation. Technical and managerial support for the implementation of this project will be provided by UNEP.

Risks and barriers

The primary risks and barriers that challenge the implementation of this project relate to the shortage of in-country expertise on watershed management. This is augmented by a situation of weak institutionality and a lack of specialized equipment. At the local level, it is anticipated that convincing local communities of the benefits of sustainable resource management will be challenging as inevitably they will have to forgo a number of short term benefits in order to improve the overall status of the watershed.

Evaluation and monitoring

Evaluation and monitoring of the project will begin with the development of a comprehensive baseline against which key indicators can be monitored. A monitoring system will then be established that adopts a three-tiered approach involving the Government, UNEP and the local community.

Financial resources

The total value of additional costs required to implement this project is US$2,200,000.

Length of Project

The project will be implemented over a three year period.

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Annex 3. Regional workshop guidelines and outline

National Adaptation Program of Action: Regional Workshops

Workshop Objectives

- Collect local knowledge on the effects of climate change on natural resources, the environment and rural livelihoods
- Learn about mechanisms used to adapt to, and mitigate, the effects of climate change

Why is it important to collect information from the Provinces?

- Local people have the best knowledge of their natural resources
- Local people the most affected by climate change and natural resource degradation
- Local people will be key players any interventions or projects
- Sustainability of projects depends upon local appropriateness
- Etc.

Selection of persons to participate in workshop

- Total of 30 - 40 persons from each of the following expert groups:
  - dryland farmers (7 – 10 persons)
  - farmers practicing irrigated agriculture (7 – 10 persons)
  - livestock herders (7 – 10 persons)
  - Kuchis (in Provinces that have Kuchi people – 7 – 10 persons)

Selection of Provinces

- Initial division of the country into eight zone with similar natural resource characteristics
- Selection of one Province from the zone based on:
  - representivity of natural resource conditions in the zone,
  - vulnerability of the Province to climate change
  - security

List of Provinces selected for realization of the Workshops

Province	Location of workshop
Wardak, Logar, Parwan	Kabul
Bamyan	Bamyan
Farah / Nimroz	Herat
Badakhshan	Faizabad

General Program for Workshops

Day 1

8.30am	Recital of the Holy Quran
8.45am	Welcome from NEPA and MAIL
9.00am	Introductions
9.25am	Overview of workshop
9.45am	Division into groups
9.50 – 2.00pm	Discussion of climate change; drinking water; crops; livestock; water; energy

Day 2

8.30am	Recital of the Holy Quran
8.45am	Discussion of energy; rangelands; other natural resource consumption; final questions
11.00am	Regroup and presentation of main findings by each of the sub-groups, including open discussion after each presentation
1.45pm	Concluding remarks and closure of workshop

Overview of the workshop

Simple explanation of why we are running the workshop

- In the 1990s Afghanistan signed a number of international conventions that relate to natural resource use and management
- They focus on the three issues of biological resources, land degradation, and climate change
- How do these issues relate to your lives?
  - Climate change – floods, droughts, etc., and associated impacts
  - Biological diversity – loss of natural resources has negative consequences for ourselves and our children
  - Land degradation or "desertification" – loss of the economic productivity of the land, spreading of desert-like conditions
  - Today the Afghan Government, together with the International Community, are looking to improve the ability of Afghanistan to deal with these issues
  - The first step in this process involves gathering information from local communities who have the most knowledge about changes in natural resources in the areas in which they live
  - With this baseline of information, we can better target future actions to address real problems on the ground
  - We will realize workshops with local people in the Provinces of Herat / Farah, Badakhshan, Bamyan / Daikundi, and Wardak / Logar / Parwan

Workshop dynamics

- We are looking to learn from YOU!!
- The more participation and discussion, the better
- Division into four groups, with one facilitator per group who will assist with recording the discussion and conclusions
- If a consensus cannot be reached on one issue within the group, then both opinions will be recorded
- Each group will present it's findings during the last afternoon of the workshop
- All information gathered will be synthesized and used in final reports concerning the impacts of climate change, land degradation and biological diversity in Afghanistan
- Any questions?

Ten topics for discussion

1. General information
2. Climate change
3. Drinking water
4. Crops
5. Livestock
6. Water for agriculture and livestock
7. Energy
8. Rangelands
9. Other natural resource consumption
10. Final questions

1. General information

2. Climate change

Have you noticed a change in the weather since before the war and in the past few years?
Yes_____ No_____
If so, what sort of change? Describe

Are dry periods and periods of drought the same now as prior to the war?
Yes_____ No_____
If no, please describe the changes
(length of drought, temperature of drought, amount of rainfall before and after drought, etc.)

If you compare today with before the war, have rainfall patterns and amounts changed?
Yes_____ No_____
If yes, please describe the changes (amount of rainfall, variability of rainfall, flooding, etc.)

Why do they think these changes that you describe in the climate have occurred?
Describe

Do you think these changes are useful or harmful?
Useful_____ Harmful_____
Please describe the reasons for your answer

What kind of problems are being created by the changes that you described in the climate?

For presentation at the end of the workshop, summarize on one or two sheets of the flipchart:

- changes in climate observed by the group
- main impacts of climate change

3. Drinking water

Do you have access to clean drinking water?
Yes_____ No_____

Where do you get your drinking water from?
Shallow well _____ (how many meters _____)
Deep well _____ (how many meters _____)
River _____ (indicate quality of water)
Spring _____
Other (describe)

Is your source of water today the same as before the war?
Yes_____ No_____
If no, describe how it has changed

If you compare today with before the war, how has the quality of your drinking water changed?
Worse_____ Same_____ Better_____
Please describe

If you compare today with before the war, how has the quantity of available drinking water changed?
More_____ Same_____ Less_____
Please describe

If you have a well for drinking water, how many meters did it have before the war and how many meters depth does it have now?
Meters before war_____
Meters after war_____

Who collects drinking water in your house?
Men, women, children, all members of household, paid labor

For presentation at the end of the workshop, summarize

- Changes in quality, quantity and source of drinking water since the war
- Reasons for these changes

4. Crops

Do you plant the same species and varieties of crops today as before the war?
Yes_____ No_____
If no, please list:
Crops before the war_____ Crops after the war_____

What are the reasons for changing crop varieties and species?
Please describe

If you compare soil fertility today with before the war, is it
More fertile_____ Less fertile_____
Please explain reasons for your answer

If you compare today with before the war, how has the production of your irrigated crops changed?
Less_____ Same_____ More_____
Why do you think these changes in production have occurred?

If you compare before the war and now, how has production of rainfed crops changed?
Less_____ Same_____ More_____
Why do you think these changes in production have occurred?

Who is responsible for crop production in your house?
Men, women, children, all members of household, paid labor

On government land around your house and village, has vegetation cover changed?
Yes_____ No_____

Please describe the changes in the quantity and quality of the vegetation cover.

- Ask also about information on changes in species composition.
  Specifically investigate the situation of all of the following resources – bushes, grasses, trees (forestry, horticulture), bare land, and sand.
  Please give main reasons for the changes that have been mentioned

For presentation at the end of the workshop, summarize

- Changes in types of crops cultivated
- Changes in natural vegetation cover around your village / along Kuchi migration path
- Reasons for these changes

5. Livestock

How has livestock production changed since before the war and now?
Livestock type How production has changed
_____ increased_____ decreased_____
_____ increased_____ decreased_____
Why do you think these changes have occurred?

Do you keep the same species and varieties of animals today as before the war?
If no, please describe the changes that have taken place and the reasons for the changes

Who is responsible for livestock herding in your house?
Men, women, children, all members of household, paid labor

For presentation at the end of the workshop, summarize

- Changes in amount of livestock owned
- Changes in species of livestock owned
- Reasons for these changes

6. Water for agriculture and livestock

What are your sources of water for agriculture and livestock?
Shallow well _____ (how many meters _____)
Deep well _____ (how many meters _____)
Kareze _____
River _____
Other (describe)

If you have a well for agriculture and livestock, how many meters did it have before the war and how many meters depth does it have now?
Meters before war _____
Meters after war _____

If you compare before the war and now, has the amount of water available for agriculture and livestock changed?
Yes _____ No _____
If yes, what are the reasons for the changes
If there is a problem, how do you think it could be solved?

For presentation at the end of the workshop, summarize

- Changes in quality, quantity and source of water for agriculture and livestock since the war
- Reasons for these changes

Energy

What are the main sources of energy that you use in your household?
Firewood (trees – list the main species) _____
Firewood (bushes – list the main species) _____
Firewood (grasses – list the main species) _____
Sawdust _____
Gas _____
Electricity _____
Cow pats _____
Other _____ describe

Where do you get fuel for cooking and heating?
Collection _____
Purchase _____
Other _____ describe

If you collect fuel, how far did you have to walk before the war and how far do you walk after the war?

Before war	After war
_____ 15 minutes	_____ 15 minutes
_____ 30 minutes	_____ 30 minutes
_____ 1 hour	_____ 1 hour
_____ 2 hours	_____ 2 hours
_____ half day	_____ half day
_____ whole day	_____ whole day

Please describe the reasons for any change

Who collects fuelwood in your house?
Men, women, children, all members of household, paid labor

Are there any alternatives to wood fuels for your household?
Yes _____ No _____ If yes, please describe

For presentation at the end of the workshop, summarize

- Changes in quality, quantity and source of energy since the war
- Reasons for these changes

Rangelands

Have you noticed any changes in the production capacity of rangelands since and before the war and the past few years?
Yes _____ No _____
If yes, please describe

What do you think are the causes of those changes?

Have there been changes in grazing practices from before the war?
Yes _____ No _____
If yes, please describe, including fallow periods, number of people and livestock using the rangelands, migrating by truck rather than by walking, conflicts over use of rangelands, changes in availability of water, and so on.

Have you noticed that there are more people using the same rangelands since before the war?
Yes _____ No _____
If yes, please describe where the new people and their livestock came from

For presentation at the end of the workshop, summarize

- Changes in quality and quantity of rangelands since the war
- Changes in migration patterns and length of fallow periods
- Changes in conflicts over rangelands since before the war
- Reasons for these changes

9. Other natural resource consumption

Do you collect, hunt, gather or harvest any of the following? If yes, please list the species and amount.
- Fish
- Medicines
- Wildlife
- Nuts
- Wild fruit
- Wood
- Mushrooms
- Anything else (describe in detail)

Are these things more available now than they were before the war? Please record details of the specific species plus the changes in abundance observed and reasons for these changes
- Fish
- Medicines
- Wildlife
- Nuts
- Wood
- Mushrooms
- Anything else

Are there natural forests in this area?
Yes_____ No _____
If yes, how has the size (number of jerib) and type (species composition) of natural forests changed since before the war?

What is the forest used for? Please describe

For presentation at the end of the workshop, summarize
- Changes in quality, quantity and type of other kinds of natural resources available since the war
- Reasons for these changes

Final questions

If the climate change keep accruing, what do you think what will be the harmful effects on environment and on the livelihoods of the people? Please describe the reasons for your answer

If you harvest more than grows, what happens to future harvests? Please describe

What effects have landmines had on your livelihoods in regard to agriculture, livestock and fuel collection? Please describe

List the three most important conflicts over natural resources that are experienced by the members of the group? Which resources? What are the reasons behind the conflict?

How has population in your village changed since before the war? What are the reasons for any changes observed (natural population growth, migration – from where to where, deaths due to fighting, etc.)

Summary and Presentation

Presentation of conclusions by each of the groups (30 minutes per group)
Open discussion and comments at the end of each presentation (30 minutes per group)

Annex 4. International projects related to implementation of Rio Conventions

UNEP is implementing a capacity building and institutional development program for environmental management, funded by the European Commission and the Government of Finland. In so far as UNEP is building management capacity of the national institutions responsible for the environmental mandate, its activities and outputs will have a positive impact on improving compliance with the UNCCD. The following components of UNEP's programme are of particular relevance:

- Coordination: Facilitation of consultation, coordination, cooperation and mainstreaming of environmental issues and projects within national planning and budgetary processes through training and technical support.

- Public administration reform and human resources development: Improvement of the effectiveness and efficiency of national environmental authorities through training and technical support in relation to mandate clarification, institutional restructuring, downsizing, human resources development and performance reviews.

- Environmental legislation, regulation and standards: Contribution to the institutionalization of environmental laws and regulations through training and technical support in the development of an integrated environmental legal and regulatory framework.

- Community-based natural resource management: Implementation of pilot projects that encourage community-based natural resource management.

- Environmental policy and planning: Contribution to the development of national environmental policy through training and technical support in the development of a national environmental action plan, and the establishment of mechanisms for inter-ministerial policy development and implementation.

- Monitoring, information and analysis: Facilitation of state of the environment reporting through training and technical support in the development of environmental monitoring, information collection and management, standardized analysis and reporting.

- Communications, outreach and education: Increasing public awareness of environmental issues through training and technical support in the development of awareness campaigns, public reporting, environmental education and public participation in decision-making.

- International and regional environmental cooperation: Promotion of increased international and regional environmental cooperation and financial support to the environmental sector through training and technical support in the implementation of multi-lateral environmental agreements, regional dialogues, project proposal development, legal harmonization, and international reporting.

As part of ADB's Poverty Reduction and Renewable Energy Development Project, ADB has supported an initial inventory of Afghanistan's greenhouse gasses.[56] The Inventory was undertaken in accordance with the revised Intergovernmental Panel on Climate Change (IPCC) guidelines for National Greenhouse Gas Inventories. It addressed the following five areas: energy, industrial processes, agriculture, land use change and forestry, and waste, and it contains annual emission estimates for both direct and indirect greenhouse gasses (Carbon Dioxide, Methane, Nitrous Oxide, Carbon Monoxides, Nitrogen Oxides, Non Methane Volatile Organic Compounds, Halocarbons, Sulfur Hexafluoride, and Sulfur Dioxide).

The inventory revealed that primary sources of CO2 emissions in Afghanistan take place in the Energy and Land-use Change and Forestry Sectors. In terms of CH4 emissions, the Energy Sector was the largest

single contributor followed by the Agricultural Sector. These findings led the authors of the report to recommend that greater attention be focused on GHG mitigation measures and adaptation responses within these three sectors. Suggested responses included the development of hydro and solar power.

The report recommends that the preliminary inventory be submitted to the Parliament of Afghanistan for approval, submission to UNFCCC, and signing the Kyoto Protocol and related documents. Similarly it recommends the establishment of a Designated National Authority (DNA) within NEPA to work on behalf of the Government and coordinate CDM projects. Associated capacity building would cover the following areas: (i) identification of eligible CDM project opportunities, (ii) collection of technical information to screen a project, (iii) review of CDM Project Design Document (PDDs), (iv) validation and registration of projects with CDM Executive Board, (v) securing financing and project implementation, (v) monitoring, verifying and certifying project emission reductions, and (vi) monetizing and transferring the project certified emission reductions (CERs).

The Pastoral Engagement, Adaptation and Capacity Enhancement (PEACE) Project implemented by Texas A&M University, funded by USAID, addresses both desertification and the impacts of climate change. Challenges for development in the livestock sector and especially pastoral development among the nomadic herders, known as *Kuchi*, are especially daunting. Years of conflict and drought have severely affected nomadic pastoral production systems. Traditional migration routes were disrupted, rangelands were plowed up to plant crops, access to grazing land for the *Kuchi* has been restricted, and many livestock were lost. The *Kuchi* saw their livelihoods greatly eroded, and even the most vulnerable have received little support to-date from the Government or the international community. The lack of information on rangeland condition and livestock market values, the use of unsustainable management practices and conflict over grazing access are hampering increased livestock production.

In response to requests made by the Afghan Government, the PEACE Project was initiated in July 2006 with the aim of reducing the social and economic risks associated with livestock production in Afghanistan. It will do this by providing more timely information on emerging forage conditions, and by increasing the number of cash generating livestock enterprises for pastoralists. Satellite-based systems that gather information on weather and vegetation greenness are combined with a plant growth model and ground monitoring to predict forage conditions (i.e. quantity). The current forage condition is updated every 10 days for near real-time assessments and 90-day forecasts are also produced by comparing the current situation with historical climate data. This information is distributed in the form of maps and bulletins that the Afghan Government or NGOs can provide to livestock producers with early-warning information. When linked with more transparent market information, the livestock economy of the nation will improve as it meets increasing demand for meat products, stabilizes social conditions, and helps lessen negative impacts on the environment. The PEACE project will also facilitate conflict resolution processes within pastoral communities across Afghanistan.

The Agro Meteorological Project in Afghanistan (AgroMet)[57] provides climatic information, validation of satellite monitoring and ground truth crop forecasts. To this end, it is building up an extensive national database and information system for hydro- and agroclimatic analyses, including 22 complete agrometeorological stations; crop yield forecasting models; water supply/ demand monitoring and forecasting; irrigation and hydropower applications; snow melt and snow water equivalent modeling; runoff and water volume estimates; and validation of remotely sensed data and its derivatives. AgroMet is funded by the United States Agency for International Development (USAID) and managed by the Food and Agriculture Organization of the United Nations (FAO). Key objectives of the project are:

- To assist the Afghan Government in their efforts to collect and analyze meteorological and agricultural data as it relates to crop production, irrigation, water supply, energy and aviation;
- To play a key role in the institutional capacity building and training of Afghan in the field of agro- and hydro-meteorology;

- To statistically monitor, assess and study drought and its possible repercussions on the natural resources in a long-term desertification process;
- To statistically monitor floods and its impact on livelihoods; and
- To prepare and publish monthly agroclimatic bulletins, seasonal analyses, special flashes and specific requests of stakeholders and to disseminate the obtained products to the end users, decision-makers, international agencies and NGO's.

To date, AgroMet has installed and is managing 89 observation sites that are recording varying agrometeorological statistics; built the Agrometeorological Database Management; trained Ministry staff, specialists and NGOs in agrometeorology methods and tools; realized preliminary modeling of crop yields (focusing on wheat); prepared monthly bulletins; and developed training materials.

The World Food Programme's (WFP) Vulnerability Analysis and Mapping (VAM) Unit began conducting yearly assessments to determine food needs for populations across the country in 1999, alongside the onset of the drought. Initially this unit was geared primarily towards determining food aid needs for WFP and partner programming purposes. Between 2002 and 2003, a review was realized and the methodology being employed was expanded so that the data collected would meet greater information needs of stakeholders in the country and would furthermore be used to guide Government policies and plan longer term food and non-food interventions. This led to the creation of the National Risk and Vulnerability Assessment (NRVA) of Afghanistan, launched in 2003. Data collection was realized in 2003 and subsequently in 2005, with the objective of collecting information at community and household levels to better understand livelihoods of rural settled populations and nomadic pastoralists (*Kuchi*) throughout the country, and to determine the types of risks and vulnerabilities that they face throughout the year. The information generated can be used to develop strategies that address the short-, medium- and long-term needs of those populations through appropriate and timely policy development and intervention strategies.[58]

The goal of the Famine Early Warning Systems Network (FEWS Net, funded by USAID) is to strengthen the abilities of foreign countries and regional organizations to manage risk of food insecurity through the provision of timely and analytical early warning and vulnerability information. FEWS Net Afghanistan believes that food security is strongly interconnected with the climate and environment in which people live. Climate depends to larger extent on how people use their environment. Over the past three decades of war, Afghanistan's environment has degraded significantly as a result of many factors that include: a) deforestation, b) desertification, c) unprofessional use of underground water, e) natural hazards such as drought, and f) overgrazing.

FEWS NET Afghanistan is seeking financial resources and expertise through which can assess the impact of climate change on food insecurity and strategies for alleviating the impact of climate change. To do so, FEWS NET Afghanistan intends to undertake the following studies: 1) climate change and its impact on Afghan food security; 2) water harvesting; and 3) the impact of Iranian cloud seeding on Afghan food security. To date, studies have been undertaken of the labor market, Pakistan wheat sector, northern wheat traders and causes of food security.

In recognition of the need to address both poverty and resource overuse, the Catholic Relief Services (CRS) has initiated a sustainable land management programme that aims at combining bio-physical watershed restoration activities with support for income generation and the provision of agricultural services. To this end, the programme will increase income per unit of resource used, thus providing opportunities for resource conservation. Interventions range from the construction of water harvesting schemes over community-based re-vegetation programmes to the support of agro-enterprise activities.

These activities are funded by:

- USAID - Three-year integrated water resource management programme, which involves community-based watershed restoration and protection; and

- World Bank Development Marketplace – to develop and demonstrate a replicable community-based natural resource management model and a set of planning and management tools appropriate for Afghanistan.

USAID-Afghanistan and the National Environmental Protection Agency (NEPA) recently initiated a joint project aimed at strengthening the institutional capacity of NEPA to implement its mandate under the Environment Law of 2007. Operated through a contract between USAID and ECODIT - a US-based small business provider of professional services in the environmental management, nature-based tourism, and water resources fields - the Biodiversity Support Program for NEPA (BSP/NEPA) will concentrate on those parts of the overall NEPA mandate that relate most closely to biodiversity conservation and natural resource management. Within this context, BSP/NEPA will support the building of institutional capital (human, financial and technical resources) for improved capacity to coordinate and monitor environmental management in Afghanistan. Core activities will focus on: (1) strengthening NEPA ability to implement the Environment Law by building internal technical and administrative capacity through on-the-job training and short courses, provision of specific external technical expertise where necessary, and assistance in selecting a limited number of candidates for masters of science (MSc) studies abroad; (2) supporting NEPA coordination of national and subnational environmental programs through specific material and technical support to an appropriate coordinating mechanism or body; (3) assisting NEPA to conduct public environmental education and outreach efforts through technical assistance in production and dissemination of targeted messages to a range of specific audiences; (4) building NEPA capacity to develop and implement environmental regulations and to develop long-term financial viability; and (5) promoting and investing in community-based resource management, including NEPA's role as monitor of field activities by governmental or nongovernmental implementers.

The Asian Development Bank (ADB) has funded the Rural Land Administration Project (RLAP) from 2006 – 2007. This project has concentrated on trialing new methodologies for community administration of rural land records, supporting the preparation of a comprehensive land policy, and developing recommendations for reform of relevant government institutions.[59] The project illustrated that considerable potential exists for solving rural land administration issues in a practical manner, providing the foundation for a major nationwide initiative in community resource management. To this end, it is anticipated that work undertaken to date under RLAP will be followed up by a Land Administration and Management Programme (LAMP) which will cover both land administration and improved land management. The purpose of this follow-up programme is that 'rural communities, assisted by national and local governments in working partnership, have developed and put into practice rural land administration systems and land improvement measures which contribute to significant improvements in the rural economies'. Specific attention will be paid to strengthening the capacities of rural communities related to land (technical and administrative) and facilitating the adoption of new roles by the local and national government authorities. New roles will be orientated towards the creation of a good environment in which communities may effectively fulfill their new planning and implementation roles.

The Wildlife Conservation Society (WCS) is implementing a project that focuses on three geographical areas: the Wakhan Corridor, the Hazajarat Plateau, and the Eastern Forest complex. These initiatives encompass four interwoven activity groups. The first involves surveys and analyses to collect baseline data, identify threats, and design initiatives to alleviate those threats – subjects include wildlife, rangeland, livestock, forest cover, health, and socioeconomic factors. The second involves community based initiatives, ranging from environmental education to facilitating the creation of community resource committees to helping with livestock health issues to hiring and training local people as wildlife rangers, monitors, and ecotourism guides. The third involves policy. This includes reviewing existing policies and providing recommendations for improvement, the development of recommendations for new and expanded protected areas, training park rangers, potentially designing a Marco Polo sheep (and markhor) trophy hunting program after careful evaluation, and other relevant government-led conservation actions, including continued efforts to establish a four-country transboundary park in the

Pamirs. The fourth involves building capacity within Afghanistan's environmental sector. This capacity building element is woven into all other project activities, and it is also specific to focused short course training and study/travel tours to relevant international sites.

Afghan Conservation Corps (ACC) was created in 2003. H.E Mr. Hamid Karzai, President of Islamic Republic of Afghanistan, and his foreign counterparts from the U.S. State Department, U.S. Department of Agriculture (USDA), and United Nations Office for Project Services (UNOPS) envisioned ACC as a labor-based program designed to provide immediate employment benefits to vulnerable people and ex-combatants, while at the same time contributing to restoration and rehabilitation of Afghanistan's environment. Since then, ACC has been an important tool in national environmental restoration and conservation efforts, funded primarily by USAID/USDA. ACC works closely with the Department of Natural Resources in MAIL and the NEPA. ACC aims to generate long-term improvements in the livelihoods of the Afghan people through sustainable natural resource management, biodiversity conservation and environmental rehabilitation. Specific objectives are: improve rural livelihoods through community forestry and horticulture, rangeland and integrated watershed management; contribute to the conservation of Afghanistan's cultural and biological diversity, with a geographical focus in critical / endangered ecoregions; develop the capacity of Government of Afghanistan and rural people to sustainably manage their natural resource base; and provide employment to vulnerable Afghans. To this end, ACCs activities have focused on nursery and orchard establishment, rehabilitation and management; improving facilities in natural protected areas; reforestation; soil and water conservation; conservation of horticultural diversity with women; conservation education; and building capacity. Projects have been implemented on public, community and private lands together with Government staff, traditional leaders (Shuras) and Community Development Councils (CDCs).

In 2007, the International Centre for Integrated Mountain Development (ICIMOD) established a Biodiversity and Community Forestry Programme in Afghanistan that aims to strengthen the natural resource management sector by providing increased access to institutional and policy innovations from the Hindu Kush Himalayan region. Funded by USAID, results of the program will include the promotion of institutional and policy development in natural resource management through regional innovations and peer networks; strengthening of the capacity for policy research, analysis and monitoring by making available best practices and international quality training from the region; and the establishment of policy and practice linkages by setting up a demonstration site for social, technical and institutional models.

The Green Afghanistan Initiative (GAIN), administered by WFP, is a joint programme of the United Nations - UNAMA, UNOPS, UNEP, WFP and UNDP - and the Government of the Islamic Republic of Afghanistan, particularly MAIL and NEPA. The objectives of GAIN are to increase natural vegetation and forest cover, provide alternative sustainable livelihoods, increase environmental awareness through education, and build capacity at institutional and community levels.

The Asian Development Bank (ADB) has recently concluded a GEF/PRCF-funded project on natural resources management and poverty reduction, with a special focus on protected areas. The purpose of the technical assistance (TA) was to address the basic needs of communities in buffer zones of protected areas by providing incentives that would help reduce poverty and, at the same time, promote the conservation of global biodiversity in selected protected areas. The ADB TA had outputs in the areas of civil works, policy, surveys, studies, and capacity building. In terms of civil works, a ranger's station, entrance gate and restrooms were constructed in the proposed Band-e-Amir National Park thereby providing facilities for staff and tourism. Policy documents included the Afghanistan Ecotourism Strategy, National Tourism Development Strategy, Social and Gender Strategy for Protected Areas, Protected Area Regulations, and Land Use Management Plan for Band-e-Amir. Surveys were carried out in a number of proposed protected areas, whereas studies focused on the more specific issues of fish farming, ethnobotany and restoration of Qambar Lake in Band-e-Amir. Finally, capacity development activities provided training for Government staff on protected area management.

FAO supports the rehabilitation and development of the agriculture and natural resource sector and assists the country towards becoming food secure and self-reliant.[60] FAO projects that are relevant to the Rio Conventions are noted as follows:

- Support to the establishment of AgroMet.

- Biodiversity conservation (focusing on wild plant species) through a German-funded project called *Managing Biodiversity for Improving Food Security and Nutrition* that aims to improve Afghan communities' nutrition, food security and livelihoods through effective use and conservation of local biodiversity. Specific objectives include, preserving local biodiversity and managing species with a high nutritional and/ or commercial value in a sustainable manner; increasing consumption of local food species with a high nutritional value by Afghan households; and increasing the income of food insecurity households through the commercialization of local natural resources.

- Emergency Irrigation Rehabilitation Project (EIRP), June 2004 to Sept. 2008. Funded by the World Bank with a total budget of US$75 million ($40m credit and $25m grant, with the balance being co-financed by the Government of Afghanistan). The project is likely to be extended to 2011 with an additional US$40 million in funding. Activities are being implemented in all of the provinces of Afghanistan through 7 regional offices and teams. Project activities have four main components:

  A) Rehabilitation of dilapidated irrigation schemes (target is 1,280 systems categorized in small up to $50,000, medium up to $300,000 and large schemes over $300,000), a total of $45m is for this main component.

  B) Restoration of the hydro-meteorological system (target is to supply and install 174 hydrological, 60 meteorological stations and 40 bank operated cableway stations);

  C) Feasibility study of Lower Kokcha Irrigation and Hydropower project and the M&E of the Project; and

  D) Institutional Strengthening and Capacity Development.

- Piloting of community based rangeland management in Yakaolang District of Central Afghanistan.

- Assessment of Afghanistan's forest resources and the capacity of its forestry sector, facilitating the identification of priority actions for its rehabilitation.

Forthcoming projects encompass two sets of activities: participatory forestry to support sustainable livelihoods in Afghanistan and sustainable rangeland management.

The mission of the International Center for Agricultural Research in the Dry Areas (ICARDA) is to contribute to the improvement of livelihoods of the resource poor in dry areas by enhancing food security and alleviating poverty through research and partnerships to achieve sustainable increases in agricultural productivity and income, while ensuring the efficient and more equitable use and conservation of natural resources. In Afghanistan, ICARDA works in the eastern provinces, Kunduz, and Helmand under USAID Alternative Development Programme-East and the Rainfed Agriculture and Livestock projects with the aim of increasing agricultural productivity, farmers incomes, reducing poverty and sustaining food security by setting up a sustainable community based seed supply system, and seed multiplication through village based seed enterprises. The project takes a participatory and community-based approach.

Annex 5. Summary of activities undertaken that contribute towards compliance with UNFCCC, UNCBD, and UNCCD

UNFCCC

Ongoing activities of the Government of the Islamic Republic of Afghanistan, together with the activities of key international organizations contribute towards improving compliance with the following UNFCCC obligations:

- Article 4.1 (a): Preliminary work on the national inventory of greenhouse gases has been undertaken.
- Article 4.1 (b): Proposal submitted for the project "*Enabling Activities for the Preparation of the Islamic Republic of Afghanistan's Initial National Communication under the UN Framework Convention on Climate Change*".
- Article 4.1 (d): Approval of Environmental Law, MAIL 5-year Master Plan, and drafting of IIP. NAPA and NCSA processes underway.
- Article 5 (a), Article 4.1 (e, g): The adaptation of the pastoralist livestock sector to the impacts of climate change is being facilitated. Agrometeorological information is being developed with a focus on food security and crop production related issues.
- Article 4.1 (e): NEPA and MAIL have the mandate for agricultural management and protection and rehabilitation of areas affected by drought, desertification and floods. Together with MEW, the three Government institutions have the mandate for water resource management.
- Article 4.1 (f, i) and Article 6: NEPA and MAIL both have mandates for environmental information, education and training, and research.

UNCBD

Ongoing activities of the Government of the Islamic Republic of Afghanistan, together with the activities of key international organizations (as detailed above) contribute towards improving compliance with the following UNCBD obligations:

- Article 1 (b): Environment has been integrated into the ANDS, and biodiversity conservation is covered in the Agriculture Master Plan and IIP.
- Article 7 (a): Components of Afghanistan's biodiversity are being researched in the Wakhan Corridor, Nuristan, Band-e-Amir and Ajar Valley.
- Article 8 (a): Draft protected area regulations elaborated. Draft management plan for Band-e-Amir under discussion.
- Article 8 (c): Environment Law published, 2007. Draft protected area regulations, and Forestry and Rangeland Laws have been elaborated and are presently being discussed. This new legislation emphasizes conservation and sustainable use. Protected area creation and management included within the Agriculture Master Plan and associated IIP.
- Article 8 (d): Decree on the prohibition of hunting, 2005. Significant efforts to realize the sustainable community-based management of natural pistachio forest in Samangan and Badghis. Sustainable community based natural resource management is emphasized in the Agriculture Master Plan and associated IIP.

- Article 8 (e): Draft natural protected area regulations emphasize sustainable natural resource use and management in those areas adjacent to protected areas. Sustainable natural resource management activities have been realized around Wakhan and Band-e-Amir proposed protected areas.

- Article 8 (f): Government and communities are working together with international organizations to restore degraded ecosystems in specific geographical areas.

- Article 10 (a): ANDS reflects the environment twice, both as an Afghanistan Compact benchmark and as a cross-cutting issue which needs to be mainstreamed within Afghanistan's wider development framework.

- Article 12 (a): A number of international organizations are providing capacity building (primarily short-term) in identification, conservation and sustainable use of elements of biological diversity.

- Article 13 (a): NEPA mandated with environmental education and awareness raising. Supplementary natural-resource related materials elaborated for distribution to schools. Environmental education and awareness raising activities are being undertaken in specific geographical areas.

- Target 4.1: Pilot efforts are being made in Samangan to ensure that two biodiversity-based products – wild pistachio (*Pistacia vera*) and devil's dung (*Ferula asa-foetida*) – are derived from sources that are sustainably managed.

UNCCD

Ongoing activities of the Government of the Islamic Republic of Afghanistan, together with the activities of key international organizations (as detailed above), contribute towards improving compliance with the following UNCCD obligations:

- Article 4.1: Technical Deputy Minister of MAIL has been designated as national focal point for UNCCD. 3rd National Report elaborated and submitted.

- Article 4.2: Proposal submitted to GEF for the project "*Capacity Building for Sustainable Land Management in Afghanistan*". ANDMA established under the Presidency.

- Article 5: Agricultural Master Plan and associated IIP address a number of the underlying causes of desertification. The importance of participatory strategies is increasingly being recognized at a national level. Environment Law has been passed and Rangeland, Forestry and Land Laws are currently being drafted.

- Article 8: NAPA and NCSA processes underway.

- Article 10: The elaboration of the NAP to Combat Desertification is included within the project *Capacity Building for Sustainable Land Management in Afghanistan* that has been submitted to GEF for approval. Activities are currently being implemented by a number of international organizations that will facilitate the implementation of the NAP.

- Article 5 (a), Article 4.1 (e, g): The adaptation of the pastoralist livestock sector to the impacts of climate change is being facilitated. Agrometeorological information is being developed with a focus on food security and crop production related issues. Food security, livelihood projects and sustainable irrigation schemes are all covered in the Agriculture Master Plan and associated IIP.

- Article 11: Cross-border coordination and collaboration for the management of the Sistan Wetlands has been initiated.

- Article 12 – 14: MSP for *Capacity Building for Sustainable Land Management in Afghanistan* has been prepared and submitted to GEF for approval. The 3rd National Report has been elaborated. International NGOs and UN Agencies are technically cooperating in the environmental field.

- Article 16 and 17: Information on rangeland productivity is being collected, analyzed and distributed. Similar initiatives are doing likewise for climatic data. Famine early warning systems network has been established in MRRD.

- Article 19: International organizations are realizing capacity building and institutional strengthening activities with NEPA and MAIL. NEPA has a legislated mandate for environmental education and public awareness raising activities and activities are ongoing in specific geographical areas. The Agriculture Master Plan considers the consolidation of its extension service.

Annex 6. List of priority cross-cutting capacity building intervention areas

Capacity building intervention areas	Level	Outputs	Interventions
Institutitional strengthening for full participation in the Rio Conventions	Systemic	Strategic plans prepared for convention implementation	Preparation of INC
			Preparation of NAP
			Preparation of NBSAP
		Inter-institutional collaboration framework established and implemented	Establishment and functioning of Inter-Ministerial Committees
			Establishment and functioning of Technical Working Groups
			Elaboration of specific plans (within the framework of the NBSAP, NAP and INC) to be implemented at the Inter-Ministerial and/ or Working Group levels
		Funding leveraged for convention issues	Mainstreaming of convention issues in national budget requests by relevant Ministries and institutions
			Training in proposal development and preparation
	Organizational	Intra-institutional collaboration framework established and implemented	Development of internal coordination mechanisms through designation of focal persons and establishment of Working Groups in relevant Ministries and institutions
			Elaboration of specific plans (within the framework of the NBSAP, NAP and INC) to be implemented at the Ministerial/ institutional level
		Effective institutional human and physical resources	Recruit/ train relevant persons
			Improved physical infrastructure and office equipment
	Individual	Technical capable individuals (see Section on Training)	Capacity building in the provisions of the Conventions and related technical issues
Legal, policy and enabling frameworks	Systemic	Legislative framework strengthened and consolidated with respect to the Conventions	Approval of Forestry Law
			Approval of Rangeland Law
			Approval PA regulations
			Approval of EIA regulations
			Development and approval of Land Policy and associated legislation
			Development of climate change legislation
			Ratification of Kyoto Protocol
			Development and approval of guidelines for selection of new natural protected areas
			Develop CITES implementation plan, designate Administrative and Scientific Authorities, and establish permitting system
		Convention related issues integrated into rural development plans, sector policies, investment plans and national legislation	Prepare guidelines for integration of convention issues into plans, policies and legislation
			Designate and train key persons to ensure full revision and integration of convention related issues
			Harmonize policies to ensure congruency
	Organizational	Appropriate methodologies and guidelines developed and disseminated	Prepare guidelines for policy makers for the integration of convention issues into plans, policies and legislation
		Strengthening of internal policies and strategies	Prepare guidelines for Government institutions to effectively integrate convention issues into internal policies and strategies
	Individual	Capacities in development and implementation of legislation improved	Recruit and train sufficient lawyers and/ or policy experts in convention issues
Education and public awareness	Systemic	Policy and decision makers, local communities, and other actors aware of the provisions of the conventions and/ or associated processes of desertification, biodiversity loss and climate change	Development of comprehensive awareness raising plans
			Preparation of awareness materials for various audiences on conventions for dissemination
			Translate awareness materials on conventions to Pashtu and Dari
			Conduct awareness raising workshops for target audiences
			Conduct mass media programmes - radio, TV and newspaper
	Organizational	Desertification, biodiversity loss and climate change integrated into school curricula	Awareness raised at the level of the Ministry of Education convention issues
			Implement teacher training programme in teacher training colleges
			Elaboration of supplementary materials
		Decision making capacity in issues related to conventions	Technical and targeted training and awareness raising with key policy and decision makers
	Individual	Government staff, University Professors, and teachers with knowledge about the Rio Conventions and associated technical issues	Implement refresher and specialist training for teachers and University professors
			Development of materials for University professors, government staff and teachers
		Capacity to run campaigns, raise public awareness and disseminate information	Specialist training in communications
			Training for journalists on convention issues

Capacity building intervention areas	Level	Outputs	Interventions
Sustainable land and resource management	Systemic	Participatory methodologies institutionalized	Relevant legislation developed and passed (see legal section)
			Development of CBNRM guidelines and tools
		Strategic plan for gradual implementation of participatory approaches elaborated	Elaboration of strategic plan for gradual implementation of participatory approaches in the cases of rangelands, land, natural protected areas, and forests
			Elaboration of guidelines for adaptive learning, including monitoring and evaluation
	Organizational	Relevant organizations leading processes of sustainable land and resource management	Development and implementation of pilot programmes
			Appropriate methodological guidelines developed and instituted
			Processes of monitoring, feedback and adaptive learning developed and institutionalized
	Individual	Capacity building in management of NPAs and participatory natural resource management	Technical training courses
			Regional and international training trips
Research (research design, data collection, analysis, modeling, dissemination, and monitoring)	Systemic	Research and development plans elaborated	Development of R&D plans for relevant Departments and institutions on convention issues
			Database design and establishment, and information management
			Strengthen research facilities
		Implementation of conventions monitored and evaluated	Develop a monitoring and evaluation plan
			Document a baseline
			Realize monitoring and evaluation activities at regular intervals
		University and research institutions become an attractive place to work	Improve conditions for University professors and researchers
	Organizational	Data collection and analysis strengthened	Training in data collection, analysis and dissemination
			Establishment of ICT and other modern data management mechanisms
			Develop standards and standardize data collection, analysis and dissemination mechanisms
		Mechanisms for disseminating and exchanging research findings strengthened	Develop networks, working groups, and internet site
			Package relevant information for use in policy and decision making support
			Convene regular workshops and promote utilization of research findings at all levels
	Individual	Adequate human resource capacities	Specialized training in research provided for promising students, with a particular emphasis on supporting participation in Masters and Doctorate programmes
Technical and managerial capacity	Systemic	PRR process completed and capable personnel hired	Completion of PRR
	Organizational	Training programme elaborated and implemented at Ministerial level	Training programme and materials developed
		Training in resource mobilization and financial management systems	Proposal writing and financial management training
		University curriculum strengthened in convention-related issues	Revise current curriculum and integrate convention issues
			Provide studying and reading materials on convention issues
			Provision of specialist lectures on convention issues
	Individual	Technical and managerial capacity to address convention related issues created and/ or strengthened	Train key persons in convention issues, communications, and management
			English language training
			Computer training

Annex 7. NCSA Action Plan

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Institutitional strengthening for full participation in the Rio Conventions						
Strategic plans prepared for convention implementation	National	– Provide policy support and technical staff	MAIL (UNCCD and UNCBD), NEPA (UNFCCC)	ANDMA, MRRD, MEW, MIC, MoE, MHE, MMI, MFTA, CSO, MoT, MoH, ATO, UN, NGOs, tertiary institutions, community and private sector	– Completed NAP – Completed INC – Completed NBSAP	– 1.5 years – 4 years – 4 years
Inter-institutional collaboration framework established and implemented	National	– Establish Inter-Ministerial Committees and WGs – Develop guidelines for coordination – Operationalize the guidelines	MAIL (UNCCD and UNCBD), NEPA (UNFCCC)	ANDMA, MRRD, MEW, MIC, MoE, MHE, MMI, MFTA, CSO, MoT, MoH, ATO, UN, international NGOs, tertiary institutions, community and private sector	– Inter-Ministerial Committees and WGs formally established and meeting on a regular basis – Guidelines – Reports	– 1 year – 1 year – Continuous
	Provincial	– WGs established – WG members trained in convention issues – Operationalize the guidelines	Dpt. of Agriculture (UNCCD and UNCBD), NEPA (UNFCCC)	MRRD, MEW, MIC, MoE, MHE, MMI, MFTA, CSO, MoT, MoH, UN, international and national NGOs, tertiary institutions, community and private sector	– Minutes of meetings – Progress reports	– As available
Funding leveraged for convention issues	National	– Prepare guidelines for mainstreaming Convention issues into national, sector, and district plans and budgets – Mainstream Convention issues into the national budget allocation process – Train individuals in proposal development and resource mobilization strategies	NEPA, MAIL	MoF	– Guidelines – Budgets that specifically address Covnention issues – Training reports	– 3 years – 3 years – As available
Intra-institutional collaboration framework established and implemented	National	– Establishment of Intra-Ministerial coordination mechanisms – Development of guidelines for the functioning of Intra-Ministerial coordination mechanims, plus the participation of non-governmental and private sector stakeholders – Committees established and functioning according to guidelines	NEPA, MAIL		– Intra-Ministerial Committees and WGs formally established and meeting on a regular basis – Guidelines – Reports	– 2 years – 1 year – Quarterly
	Provincial	– Development of communication mechanisms between national and provincial levels – Establish working groups responsible for coordinating Convention-related issues	NEPA, MAIL		– Evidence of improved communication flows – Minutes of meetings	– 3 years – As available
Effective institutional human and physical resources	National	– Improve available physical infrastructure and office equipment – Training in Rio Conventions and related technical issues	NEPA, MAIL	ANDMA, MRRD, MEW, MIC, MoE, MHE, MMI, MFTA, CSO, MoT, MoH, ATO, UN, international and national NGOs, tertiary institutions and private sector	– Physical infrastructure in place – Ministry staff with improved technical and legal knowledge on the Rio Conventions and related issues – Training reports	– 3 years – 2 years – As available
	Provincial	– Improve available physical infrastructure and office equipment – Training in Rio Conventions and related technical issues	NEPA, Dept. of Agriculture	Local Government, UN, international and national NGOs, tertiary institutions, community and private sector	– Physical infrastructure in place – Ministry staff with improved technical and legal knowledge on the Rio Conventions and related issues – Training reports	– 3 years – 2 years – As available

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Legal, policy and enabling frameworks						
Legislative framework strengthened and consolidated with respect to the Conventions	National	– Approval of national legislation that supports Afghanistan's compliance with the Rio Conventions – Development of climate change legislation and signature of the Kyoto Protocol	NEPA, MAIL	Ministry of Justice, Parliament	– Key legislation developed and published (Forest Law, Rangeland Law, Land Law, PA regulations, etc.) – Afghanistan signatory to Kyoto Protocol – National level climate change legislation developed and published	– 3 years – 3 years – 3 years
Convention related issues integrated into rural development plans, sector policies, investment plans and national legislation	National	– Review existing plans, policies and legal frameworks to incorporation Rio Convention issues – Participate actively in the elaboration of new legislation, policies and stategies to ensure incorportation of Rio Convention issues	NEPA, MAIL	NEPA, MAIL, MRRD, Ministry of Justice, MoT, NGOs, UN, NGOs	– Number of plans, policies and legal frameworks reviewed	– 3 years
Appropriate methodologies and guidelines developed and disseminated	National	– Prepare guidelines for the integration of Rio Convention issues into planning processes	NEPA, MAIL	NEPA, MAIL, MRRD, Ministry of Justice, MoT, NGOs, UN, NGOs	– Guidelines	– 3 years
Strengthening of internal policies and strategies	National	– Develop internal policies and strategies and associated guidelines that facilitate integration of Convention related issues – Revise and harmonize policies to ensure congruency	NEPA, MAIL	MAIL, MRRD	– Internal policies and strategies – Harmonized policies	– 3 years
Capacities in development and implementation of legislation improved	National	– Improve available physical infrastructure and office equipment – Training in Rio Conventions and related technical issues	NEPA, MAIL	MoF, PRR Commission, MoE, UN, international and national organizations	– Physical infrastructure in place – Ministry staff with improved technical and legal knowledge on the Rio Conventions and related issues – Training reports	– 3 years – 2 years – As available
	Provincial	– Improve available physical infrastructure and office equipment – Training in Rio Conventions and related technical issues	NEPA, Dept. of Agriculture	MoF, PRR Commission, MoE, UN, international and national organizations	– Physical infrastructure in place – Ministry staff with improved technical and legal knowledge on the Rio Conventions and related issues – Training reports	– 3 years – 2 years – As available

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Education and public awareness						
Policy and decision makers, local communities, and other actors aware of the provisions of the conventions and/ or associated processes of desertification, biodiversity loss and climate change	National	– Design of national awareness programme – Preparing of materials about the Rio Conventions and associated issues for various audiences, including translation into local languages – Conduct workshops for target audiences – Preparing programs for media (newspapers, magazines, radio, and TVs)	MAIL, NEPA	Ministry of Information and Culture, Ministry of Piligramige and Endowment, ME, MHE, MPHt, security departments, MRRD, UN, international and national NGOs, and private sector	– Awareness raising programme – Awareness raising materials – No. Radio and TV programmes – No. seminars and workshops held	– 2 years
	Provincial	– Implementation of awareness raising programme by Province – Conduct workshops for target audiences – Preparing programs for media (newspapers, magazines, radio, and TVs)	MAIL, NEPA		– No. Radio and TV programmes – No. seminars and workshops held	– 3 years
Desertification, biodiversity loss and climate change integrated into school curricula	National	– Review of present curricula – Preparing supplemental teaching materials related to Convention issues	ME, MHE	Academy of Science, NEPA, MAIL, UN, international and national organizations	– Reports – Supplemental teaching materials	– 2 years
Government staff, University Professors, and teachers with knowledge about the Rio Conventions and associated technical issues	National and Provincial	– Implement refresher and specialist training for University professors – Development of materials for University professors, government staff and teachers	MAIL, NEPA	Ministry of Education, Ministry of Higher Education, Academy of Science, NEPA, MAIL, UN, international and national organizations	– Reports – No. of training workshops – Training materials	– 2 years
Capacity to run campaigns, raise public awareness and disseminate information	National and Provincial	– Realization of short-term training courses on the implementation of awareness raising campaigns – Training for journalists on Convention issues	MAIL, NEPA	Ministry of Higher Education, Universities, UN, international and national organizations	– No. or short-term training courses	– 1 year

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Sustainable land and resource management						
Participatory methodologies institutionalized	National	– Development of guidelines and tools that promote community participation in natural resource management – Training workshops on participation and community based natural resource management	MAIL, NEPA	MRRD, MEW, UN, international and national organizations	– Example of guidelines – No. training courses – No. trained staff	– 1 year
	Provincial	– Dissemination of guidelines – Training workshops on participation and community based natural resource management	MAIL, NEPA	Regional Government, MRRD, MEW, UN, international and national organizations	– No. training courses – No. trained staff	– 1 year
Strategic plan for gradual implementation of participatory approaches elaborated	National	– Strategic plan for implementation of community based natural resource management elaborated – Elaboration of guidelines for adaptive learning, including monitoring and evaluation	MAIL, NEPA	MRRD, MEW, MoE, Provincial Government, UN and international organizations	– Plan – Consultation workshops – Guidelines	– 2 years
Relevant organizations leading processes of sustainable land and resource management	National	– Support to development and implementation of pilot programmes at Provincial levels – Appropriate methodological guidelines developed and instituted – Processes of monitoring, feedback and adaptive learning developed and institutionalized	MAIL, NEPA	MoM, MoJ, MRRD, UN, and national and international organizations	– No. of pilot programmes – Methodological guidelines – M&E guidelines	– 5 years
	Provincial	– Development and implementation of pilot programmes – Processes of monitoring, feedback and adaptive learning developed and institutionalized	MAIL, NEPA	Provincial Government, MoM, MoJ, MRRD, UN, and national and international organizations	– No. of pilot programmes – Reports	– 5 years
Capacity building in management of NPAs and participatory natural resource management	National and Provincial	– Technical training courses – Natural protected area regulations – Regional and international training trips	MAIL, NEPA	Ministry of Urban Development, CDCs, Imams, health workers, community members, Municipality, Regional Government, Ministry of Interior, MEW, MIC, UN, international and national organisations	– No. of training courses – Example of regulations	– 3 years

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Research (research design, data collection, analysis, modeling, dissemination, and monitoring)						
Research and development plans elaborated	National and Provincial	– Development of R&D plans for relevant Departments and institutions on convention issues – Database design and establishment, and information management – Strengthen research facilities with equipment and facilities	Ministry of Higher Education	Universities, NEPA, MAIL, MoF, MRRD, CSO, UN, national and international organizations, Academy of Science	– R&D plans – Databases – Reports – Improved facilities	– 3 years
Implementation of conventions monitored and evaluated	National and Provincial	– Develop a monitoring and evaluation plan – Document a baseline – Realize monitoring and evaluation activities at regular intervals	MAIL, NEPA	Universities, Provincial Governments, MRRD, UN, national and international organizations	– M&E plan – Baseline	– 3 years
University and research institutions become an attractive place to work	National	– Improved working conditions facilitate the development of research programmes	Ministry of Higher Education	UN, International and national organizations	– Report	– 3 years
Data collection and analysis strengthened	National	– Training in data collection, analysis and dissemination – Establishment of ICT and other modern data management mechanisms – Develop standards and standardize data collection, analysis and dissemination mechanisms	MAIL	NEPA, MHE, MF, MEW, MRRD, ME, CSO, UN, national and regional universities	– Workshops – Reports	– 3 years
Mechanisms for disseminating and exchanging research findings strengthened	National	– Develop networks, working groups, and internet site – Training in dissemination methodologies	NEPA, MAIL, Univerisities	International and national organizations	– No. networks – Internet site – No. Workshops	– 2 years
	Provincial	– Training in dissemination methodologies	NEPA, MAIL, Univerisities	Provincial government, MRRD, CDC system, international and national organizations	– No. persons trained – No. workshops realized – Copies of materials disseminated	– 3 years
	Local	– Training in dissemination methodologies	Shura	Mullahs, provincial government, provincial universities	– No. persons trained – No. workshops realized – No. Friday prayers w env. issues integrated – Copies of materials disseminated	– 4 years
Adequate human resource capacities	See following section					

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
Technical and managerial capacity						
Training programme elaborated and implemented at Ministerial level	National	– Conduct training needs assessment for Ministerial-leval training and awareness raising – Development and implementation of targeted training strategy for Convention-related issues – Identification of a variety of implementation strategies – Prepare training materials	NEPA, MAIL	Gvt. Ministries involved in Convention implementation, international organizations	– Copy of training needs assessment – Copy of training strategy – Training materials – No. persons trained	– 3 years
	Provincial	– Conduct training needs assessment – Development and implementation of targeted training strategy for Convention-related issues – Identification of a variety of implementation strategies – Prepare training materials	NEPA, MAIL	Provincial Departments involved in Convention implementation, international and national organizations	– Copy of training needs assessment – Copy of training strategy – Training materials – No. persons trained	– 4 years
University curriculum strengthened in convention-related issues	National	– Revision of curriculum of relevant courses – Integration of Convention-related issues – Development of supplemental training materials	Universities	NEPA, MAIL	– Copy of revised components of curriculum – Supplemental training materials	– 3 years
	Provincial	– Revision of curriculum of relevant courses – Integration of Convention-related issues – Use of supplemental training materials prepared at national level	Universities	NEPA, MAIL	– Copy of revised components of curriculum – Supplemental training materials	– 3 years
Technical and managerial capacity to address convention related issues created and/ or strengthened	National	– Detailed training needs assessment – Preparation of training materials – Training in Convention-related issues – Management and financial management training – Training in English and computing	NEPA, MAIL	Gvt. Ministries involved in Convention implementation, international organizations	– Assessment reports – Training materials – Training reports	– 3 years
	Provincial	– Detailed training needs assessment – Use of training materials prepared at national level – Training in Convention-related issues – Training in English and computing	NEPA, MAIL	Provincial Departments involved in Convention implementation, international and national organizations	– Assessment reports – Training materials – Training reports	– 3 years
	Local	– Technical training in the implementation of sustainable land and natural resource management	NEPA, MAIL	Provincial Departments involved in Convention implementation, international and national organizations, community organizations	– Training materials – Training reports	– 4 years

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
UNCBD						
Scientifically and socially sound strategy for developing a comprehensive and representative system of natural protected areas	National	– Elaboration of a strategy for defining a comprehensive natural protected area system for Afghanistan – Desktop and field research – Production of a report and guidelines that detail a comprehensive protected area system	NEPA, MAIL	International and national organizations	– Report	– 1 year
Designation of priority protected areas	National	– Develop associated guidelines for selection of additional protected areas – Detailed methodology for process of selecting areas – Designation of protected areas	NEPA, MAIL	International and national organizations	– Guidelines issued – Methodology – Areas designated	– 2 years – 2 years – 5 years+
	Provincial	– Technical training – Realize necessary surveys, natural resource evaluations, and participatory exercises with communities	NEPA, MAIL	Provincial government, MRRD, CDC system, international and national organizations	– No. persons trained – No. of technical dossiers justifying protected area creation	– 2 years – 5 years+
	Local	– Awareness raising and training in conservation and protected area related issues	NEPA, MAIL	Community leaders, CDCs, mullahs	– No. areas supported by local population – No. persons trained	– 3 years – 3 years
Develop a red-list of endangered species of large mammals	National	– Develop a methodology for elaborating an Afghan red list – Training of key personnel and researchers – Based on information collected, development and approval of red list	NEPA, MAIL	International and national organizations	– Report – Red list	– 3 years+
	Provincial and local	– Technical training – Realize necessary surveys, natural resource evaluations, and participatory exercises with communities	NEPA, MAIL	Community leaders, CDCs, mullahs, international and national organizations	– No. mammals with populations assessed – No. persons trained	– 3 years+
CITES implementation system functioning in Afghanistan	National	– Designation of Scientific and Administrative Authorities – Listing of species according to App. I, II, and III – Development of CITES implementation guidelines – Development of CITES implementation methodology plus training materials – Training (technical and legal)	MAIL, Univerisity, NEPA	NEPA, Ministry of Frontiers and Tribal Affairs, Ministry of Interior, MoT, international organizations	– Formal designation of authorities – Threatened species listed according to relevant appendice – Guidelines – Methodology plus relevant training materials – No. of persons trained	– 2 years – 3 years – 3 years – 4 years – 4 years
	Provincial	– Training in CITES implementation and guidelines – Implement awareness and conservation programmes addressing the status of endangered species – Resource surveys – Border control	Dpt. of Agric., Univerisity	NEPA, Ministry of Frontiers and Tribal Affairs, Ministry of Interior, provincial government, international organizations	– No. of persons trained – No. of intridictions – Resource surveys reports	– 5 years – 4 years+ – 5 years+
	Local	– Awareness raising in provisions of CITES – Implement awareness and conservation programmes addressing the status of endangered species	Dpt. of Agric., Univerisity, NEPA	NEPA, Ministry of Frontiers and Tribal Affairs, Ministry of Interior	– No. of communities with increased awareness	– 3 years

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
UNCCD						
Development of drought early warning system	National	– Assessment of data currently being collected – Working methodology for comprehensive drought early warning system developed – Database development – Dissemination system designed and implemented – Improved equipment for data collection and processing	MAIL, NEPA, MRRD	ANDMA, AMA, KU, MoEW, International and National NGOs	– Copy of assessment – Methodology – Database – Dissemation system – Equipment upgraded	– 3 years
	Provincial	– Training in data collection and database use – Database development – Dissemination system designed and implemented at regional and local levels – Improved equipment for data collection	MAIL, NEPA, MRRD	Provincial departments, international organizations	– No. persons trained – Database – Dissemation system – Equipment upgraded	– 5 years
	Local	– Training in data collection and implementation – Increase reliability and scope of data collection	MAIL, NEPA, MRRD, local communities	Agrticulture representative in local area AMA observational members in remote areas	– No. persons trained – Improved data collection	– 5 years
Development of local, drought and salt resistant crops	National	– Development of a research plan – Establishment of linkages with other institutions in the region undertaking similar research – Implementation of research plan	MAIL, Universities	International and national organizations	– Research plan – Reports – Exchange of information at regional and international levels	– 3 years
	Provincial and local	– Research plots – Personnel trained in implementation of research plots	MAIL, Universities	International and national organizations	– Reports from research plots – No. of persons trained	– 3 years
Food security improved	National	– Identification and promotion of improved livelihoods for drought prone areas – Identification and promotion of drought and salt resistant species – Promotion of improved storage facilities and market accessibility	MAIL, MRRD	Universities, international and national organizations, NEPA	– Reports	– 4 years
	Provincial	– Identification and promotion of improved livelihoods for drought prone areas – Demonstrations of drought and salt resistant species – Provision of improved storage facilities and market accessibility	Local authorities of MAIL & MRRD	Provincial Gvt., Universities, rural communities, international and national organizations	– Reports – Pilot sites – Results of demonstrations	– 4 years
	Local	– Adoption of improved livelihoods for drought prone areas – Demonstrations of drought and salt resistant species – Improved storage facilities and market accessibility	Rural communities	Provincial Gvt., Universities, international and national organizations	– Pilot sites – Extent of adoption – Storage and processing facilities	– 4 years

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
UNCCD (Continued)						
Development and implementation of range management systems	National	– Approval of Rangeland Law – Elaboration of rangeland management plan and implementation strategy – Training in rangeland management and conflict resolution	MAIL, NEPA	Ministry of Justice, Parliament, Ministry of Frontiers and Tribal Affairs, international and national organizations	– Rangeland law approved – Rangeland management plan and implementation strategy developed and approved – No. persons trained	– 1 year+
	Provincial and local	– Development of pilot sites for the implementation of rangeland management plans – Feedback of results to national level – Training of community members and Provincial Government in rangeland management	MAIL, NEPA	Ministry of Justice, Parliament, Ministry of Frontiers and Tribal Affairs, international and national organizations	– Pilot sites established – Feedback from pilot experiences – No. persons trained	– 3 years
Energy resources efficiently used and alternatives to wood-based energy resources developed	National	– Establishment of Technical Working Group – Identification of alternatives to wood-based fuels – Pilot implementation at national level	MEW	NEPA, MAIL, MRRD, international organizations	– Group established – Alternatives identified – Pilot sites	– 1 year+
	Provincial	– Training in use of alternatives to wood-based fuels – Pilot implementation at Provincial levels – Feedback of results to national level – Awareness raising about the importance of the development and use of alternatives	Local authorities of MEW	Local authorities of NEPA & MAIL, Provincial Government, international and national organizations, private sector	– No. persons trained – Pilot sites – Monitoring and feedback systems institutionalized – No. communities with increased awareness	– 4 years
	Local	– Training in use of alternatives to wood-based fuels – Pilot implementation at community level – Feedback of results – Awareness raising about the importance of the development and use of alternatives	Local authorities of MEW, community leaders	Local authorities of NEPA & MAIL, Provincial Government, international and national organizations	– No. persons trained – Pilot sites – Monitoring and feedback systems institutionalized – No. communities with increased awareness	– 5 years

Capacity building intervention area and outputs	Implementation level	Role of implementers	Lead institution	Collaborators	Verifiable indicators	Time frame
UNFCCC						
Increased understanding of the impacts of, and vulnerability to, climate change, current and future climate variability and extreme events, and the implications for sustainable development	National	– Establishment of a National Climate Change Committee – Development of links with regional research centres – Develop research strategy for Afghanistan – Implementation of research strategy	NEPA	MAIL, UN, Universities, members of the National Climate Change Committee, International and national organizations	– Committee established – Research plan elaborated and approved – Links established with neighboring countries and relevant think-tanks – Reports	– 3 years
Rehabilitation of areas affected by drought, desertification and floods	National	– Identification of priority degraded areas to be rehabilitated – Framework for targeting of rehabilitation activities elaborated	MAIL	NEPA, MRRD, international and national organizations	– Identification of priority areas and activities	– 5 years
	Provincial	– Training in natural resource restoration – Government facilitates community rehabilitation of targeted degraded areas	Dpt. of Agric.	Provincial authorities, local communities, national and international organizations	– No. of persons trained – Govt. facilities improved	– 5 years
	Local	– Training in natural resource restoration – Rehabilitation of priority areas	Dpt. of Agric.	Provincial authorities, local communities, national and international organizations	– No. persons trained – Priority areas rehabilitated	– 5 years

Annex 8. Inventory of climatic hazards and basic impact evaluation

Hazard	Narrative	Impacts	Loss of life	Duration	Spatial extent (km^2)	Frequency	Tendency
Periodic drought	Decrease in productivity of crops; forced migration; changes in livelihood; decrease in amount of exports; and financial losses.	3	3	4	6	2	▲
Floods due to untimely and heavy rainfall	Collapse and sedimentation of irrigation canals; destruction of agricultural lands; loss of crops and livestock; collapse of dwellings; spread of epidemic diseases; destruction of infrastructure such as roads and bridges; and damage to the national economy.	3	3	1	4	3	▲
Frost and cold spells	River levels rise; destruction of riverside agricultural and non-agricultural (forest, range, etc.) lands; land slides; soil erosion; destruction of infrastructure such as bridges and gabions.	3	1	1	5	3	▲
Flooding due to thawing of snow and ice	Increase in levels of incidence of diseases that affect humans, agriculture and livestock; habitat changes affect wildlife; changes in vegetation cover and associated grazing patterns.	3	2	3	5	3	▲
Rise in temprature	Degradation of fruits, crops, vegetable and health disease, poor economy and increasing of poverty.	3	3	3	6	3	▲
Hail, thunder and lightening	Destruction of crops (particularly horticultural crops); human and livestock losses; and outflow/gush from floods.	2	1	1	3	3	△
Monsoon and 120-day winds	Desertification; degradation of agricultural lands and crops; destruction of infrastructure; air pollution; spread and transmission of diseases and respiratory problems; sedimentation of irrigation systems and springs; local and national economy negatively affected.	2	1	3	5	3	△

1. Impacts: 1 = US$1 per capital; 2 = $10; 3 = $100; 4 = $1,000; 5 = $10,000

2. Loss of life: 1 = 1 person per event; 2 = 10 people; 3 = 100 people; 4 = 1,000 people

3. Duration: 1 = 1 day; 2 = 10 days; 3 = 100 days; 4 = 1,000 days (more than 1 year)

4. Spatial extent: 1 = 1km2; 2 = 10km2; 3 = 100km2; 4 = 1,000km2; 5 – 10,000km2; 6 = 100,000km2

5. Frequency: 1 = 1% probability of occurrence in a year; 2 = 10%; 3 = 100% (occurs once a year)

6. Trend: ▲ = significant increase; △ = moderate increase; ? = uncertain trend

Annex 9. Weighting matrix for prioritizing vulnerable sectors in Afghanistan

Sector	Sub-sector	Socio-economic rank	Climatic & climate induced parameters				Sub-sectoral vulnerability index	Vulnerability index
			Temperature raise	Eva-transparation & salinity	Precipitation pattern ch.	Drought		
Water resources	Hydro power generation	6	-3	-4	-1	-7	-90	-338.8
	Underground water	5.6	-1	-2	-7	-7	-95.2	
	Surface water	6.4	-6	-7	-3	-8	-153.6	
Agriculture	Wheat & rice production	8	2	-7	-3	-8	-128	-285.8
	Crop production	6.4	2	-4	-2	-7	-70.4	
	Livestock husbandry	6.4	-2	-3	1	-6	-64	
	Fisheries	2.6	1	-4	-1	-5	-23.4	
Forestry & rangeland	Desertification& soil erosion	4.6	-3	-6	-3	-9	-96.6	-323.4
	Forest & wood production	6.3	-3	-3	-3	-5	-88.2	
	Grassland & forage production	6.3	-4	-7	-3	-8	-138.6	
Biodiversity	Lake & wetlands	3.9	-4	-6	1	-8	-66.3	-178.6
	Wildlife & heritage	4.9	-4	-6	-3	-6	-93.1	
	Migration of aquatic species	1.6	-2	-3	-1	-6	-19.2	
Health	Incidence of tropical diseases	5.6	-6	-2	-3	-7	-100.8	-284
	Diseases affected by disaster	3.6	-4	1	-2	-7	-43.2	
	Access to fresh water	5.6	-5	-6	-6	-8	-140	
Energy	Primary energy production	4.3	-1	-1	0	-1	-12.9	-46.5
	Thermal electricity production	3.6	-2	-1	-1	-2	-21.6	
	Domestic energy demand	3	-1	-1	1	-3	-12	
Waste	Liquid waste	2.5	-1	2	-1	1	2.5	-1.4
	Solid waste	3.9	-2	1	-1	1	-3.9	

The socio-economic index ranged from 1-9 and climatic parameters from -9 to 9, according to the Saaty approach in AHP.
The minus sign shows the adverse impact of climate change. The sub-sectoral vulnerability indices are calculated by multiplying the socio-economic rank to the summation of vulnerability ranks to climatic parameters. Then sectoral vulnerability index is calculated by summation of the sub-sectoral vulnerability indices.

Annex 10. List of proposed projects and preliminary scoring

	Cost effectiveness	Level or degree of adverse effects of climate change	Poverty reduction to enhance adaptive capacity	Synergy with other MEAs	Score
1. Human health					
1.1 Regular cleaning and vaccination campaigns in mosquito prevalent zones	High	High	High	Low	16
1.2 Monitoring of air and drinking water quality	Medium	High	Medium	Medium	14
2. Water resources and renewable energy					
2.1 Improvement of canals; de-silting of the Karezes time by time, raising concrete walls in front of the passages of all karezes for prevention of flood flow into the karezes	High	High	High	High	20
2.2 Construction of retaining walls for prevention of water wastage and for reducing the risks of floods	High	High	High	Medium	18
2.3 Introduction of drip and sprinkle irrigation	High	High	High	Medium	18
2.4 Construction of reservoirs for rain water	Medium	High	Low	Low	10
2.5 Construction of dams from gabion for control of floods	High	Medium	High	High	18
2.6 Raise community awareness on sustainable use of water resources	High	High	High	High	20
2.7 Improve land management at the watershed level, promoting afforestation and improving watershed management	High	High	High	High	20
2.8 Solar power project	High	Medium	Medium	High	16
2.9 Design and installation of hydropower plants	Medium	High	High	Low	14
3. Agriculture and Food Security					
3.1 Research into drought resistant seeds, different varieties of plants and livestock, and diseases of flora and fauna and the prevention measures; including establishment of agricultural farms	High	High	High	Medium	18
3.2 Establishment of cold stores for agricultural products	High	Medium	High	Medium	16
3.3 Establishing agricultural cooperatives and associations	High	Medium	High	Low	14
3.4 Establish food processing industries	High	Medium	High	Low	14
3.5 Development of markets (international and national) for selling agricultural produce, including market analysis	High	High	High	Low	16
3.6 Ensure agricultural products meet international standards for exporting	High	Medium	Medium	Low	12
3.7 Market analysis according to crop and food quality	Medium	Low	Medium	Low	8
3.8 Establishment of an agricultural credit system for farmers	High	Low	High	Low	12
3.9 Improving food security measures through diversification	High	High	High	Medium	18
3.10 Disaster management strategy – planning for food security and emergency supplies to vulnerable communities	High	High	High	Medium	18
3.11 Provision of inputs to farmers, including plant protection, chemical fertilizer and organic fertilizers	High	Medium	High	Medium	16
3.12 Establishment of agricultural extension mechanism	High	Medium	High	Medium	16
3.13 Provision of relevant agricultural machinery	High	Medium	High	Low	14
3.14 Development of horticulture through use of improved varieties and establishment of nurseries	High	High	High	Medium	18
3.15 Promote terracing, agroforestry and agro-silvo pastoral systems to reduce soil erosion and run-off on steep slopes	High	High	High	High	20
3.16 Create more off-farm or cash earning job opportunities for farmers who are affected by crop loss due to climate change effects	High	High	High	Medium	18

	Cost effectiveness	Level or degree of adverse effects of climate change	Poverty reduction to enhance adaptive capacity	Synergy with other MEAs	Score
4. Animal husbandry, grazing and rangelands					
4.1 Promotion of small scale industries based on livestock, including chicken farms, beekeeping and silk farms	High	High	High	Medium	18
4.2 Improved breeding of animals, introduction of new breeds	High	High	High	Medium	18
4.3 Improved veterinary services	High	High	High	Medium	18
4.4 Cultivation of drought resistant fodder	High	High	High	Medium	18
4.5 Rangeland management and development and implementation of systems of rotational grazing	High	High	High	High	20
4.6 Protection and supervision of rangelands	High	High	High	High	20
4.7 Establishment of milk accumulation and pasteurization centers	Medium	Medium	Medium	Low	10
4.8 Establishment of agricultural and livestock unions, cooperatives and associations for the betterment of the condition of animal husbandry	High	High	High	Medium	18
4.9 Seeking proper marketing opportunities for selling the products	High	Medium	High	Low	12
4.10 Improve utilization of the wool and skin of the animals	Medium	Medium	Medium	Low	10
4.11 Improve slaughterhouse facilities	Medium	Medium	Medium	Low	10
5. Forests and Biodiversity					
5.1 Promote community based forest management and afforestation projects in ways to conserve land, water resources and wood production	High	High	High	High	20
6. Natural disaster preparedness and infrastructure					
6.1 Installation of agro-meteorological stations, development of early warning system, hazard mapping	High	High	High	High	20
6.2 Development of national database on landslide prone areas and intensity of land slides to assess related risks	Medium	Medium	Medium	Low	10
6.3 Reforestation of catchment areas and stabilization of slopes in those areas that are prone to flooding and landslides; soil conservation techniques	High	High	High	High	20
6.4 Establishing market sites at the district and provincial level	High	Medium	High	Low	14
6.5 Provision of improved transportation facilities	High	Medium	High	Low	14
6.6 Construction of highways	High	Medium	High	Low	14
7. Capacity building					
7.1 Build capacity to respond to natural disasters, including the preparation of a national disaster management strategy	High	High	High	High	20
7.2 Build technical capacity and expertise for integrated assessment of climate change adaptations, including technical capacity to monitor and analyze climate trends, plan and implement adaptation activities, improve forecasts and inform policy makers	High	High	High	High	20
7.3 Training of Vets regarding diagnosing and treating diseases	High	High	High	Medium	18
7.4 Increase public awareness of farmers through media	High	Medium	High	Medium	16
7.5 Capacity building and knowledge for environment protection in the market	High	Medium	Medium	Low	12
7.6 Promotion of Afghan foods through the media.	Medium	Low	Low	Low	8

Further information

Further technical information may be obtained from the UNEP Post-Conflict and Disaster Management Branch website at: **http://postconflict.unep.ch** or by Email: **postconflict@unep.ch**


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