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Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

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PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1 Project title	Building adaptive capacity and resilience to climate change in Afghanistan
1.2 Project number	548
1.3 Project type	FSP
1.4 Trust Fund	LD
1.5 Strategic Objective	GEF strategic long-term objective Climate change adaptation
1.6 UNEP priority	Climate change adaptation
1.7 Geographical scope	National: Afghanistan
1.8 Mode of execution	National Execution (with execution support from UNEP PCDMB)
1.9 Project executing organisation	National Environmental Protection Agency, Afghanistan
1.10 Duration of project	48 months Commencing: 11/01/2012 Completion: 12/01/2016

1.11 Cost of project

	US\$	Type	%
Cost to the LDCF	\$5,390,000	Grant	27.2
Co-financing			
National Solidarity Programme (NSP)	\$10,000,000	Grant (parallel)	50.5
National Area-Based Development Programme (NABDP)	\$2,400,000	Grant (parallel)	12.1
National Environmental Protection Agency	\$1,000,000	In-kind	5.1
Agro-Meteorology Programme (AgroMet)	\$600,000	Grant (parallel)	3.0
Rehabilitation of the Afghan Meteorological Authority	\$400,000	Grant (parallel)	2.0
Total	\$19,790,000		100

1.12 Project summary:

In line with the guidance for the Least Developed Countries Fund (LDCF), this proposal seeks LDCF funding for a Full-Size Project in the Islamic Republic of Afghanistan to implement the adaptation priorities “improved water management and use efficiency” and “community-based watershed management” as well as to contribute to the adaptation priorities “improved terracing, agroforestry and agro-silvo pastoral systems”, “climate-related research and early warning systems”, “improved food security” and “rangeland management”, all of which were identified as priority interventions during Afghanistan’s National Adaptation Plan of Action process. In addition to the LDCF funding, co-financing will be mobilised from baseline activities currently underway in Afghanistan in the form of the National Solidarity Programme and the National Area-based Development Programme. Additionally, strategic capacity-building activities for climate change risk assessment and the development of a climate early warning system will be undertaken in synergy with the RAMA and AgroMet baseline projects. The different funding sources will cover specific activities whilst contributing to the same objective (namely, *to increase resilience of vulnerable communities and build capacity of local and national institutions to address climate change risk*) and goal (namely, *to increase the resilience of Afghanistan society and economy to the effects of climate change and to enhance the capacity of Government of the Islamic Republic of Afghanistan to undertake effective planning on adaptation*).

Afghanistan has been identified as one of the countries that are most vulnerable to climate change. A legacy of many years of instability and conflict has meant that Afghanistan is very poorly developed. Much of the infrastructure has been damaged or destroyed as a result of conflict, and both education and government structures have suffered as well. Approximately 79% of the population is engaged in agricultural activities, the majority at a subsistence level. Although a significant portion of these activities are dependent on the very low precipitation, many more are dependent on the flow of several perennial rivers that originate in the central highlands area. Natural ecosystems throughout Afghanistan are very fragile, with highly erodible soils and very low vegetation cover in most areas. The degrading effects of increasing human activity in many areas are exacerbated by current climatic variability, principally frequent droughts and extreme weather-induced floods and erosion.

At present, Afghanistan is experiencing an increase in the number and intensity of droughts, as well as more frequent flooding events as a result of increased climate variability and the melting of glaciers in the highland regions. The climate change induced problems facing Afghanistan are twofold. Firstly, under conditions of climate change, it is predicted that the incidence of extreme weather events and droughts will increase, as will climate change-linked disasters such as glacial lake outflows. These changes are likely to adversely affect natural ecosystems, agriculture and community livelihoods throughout the country. Secondly, national structures, including communities, district leaders, researchers and government agencies currently lack the capacity to plan for, overcome and withstand the anticipated climate change-related threats. This capacity deficit as well as underlying vulnerability to climate change impacts are exacerbated by the following non-climate change-driven causes: i) unsustainable use of natural resources; ii) high poverty levels; and iii) dependence on rain-fed agriculture; and v) a poorly developed policy environment. In addition, the National Adaptation Plan of Action (NAPA) highlights water as the primary concern, which is reflected in the two priority projects identified in the NAPA: “1: Improved water management and use efficiency”; and “2: Community-based watershed management”.

To address these problems, the LDCF project will strengthen institutional capacity in Afghanistan to facilitate effective adaptation planning and protection of communities, ecosystems and development against climate change. Community and local capacity will be strengthened to successfully respond to climate change. This will include demonstration interventions at pilot sites in four provinces to restore and sustainably manage ecosystems to deliver the full range of ecosystem services they are capable of delivering, especially

provision of water. Ecosystem management approaches will be tailored to build climate resilient local communities, enhancing the benefits provided by ecosystems and ensuring their resilience under conditions of climate change. A primary focus of the ecosystem management approach to adaptation will be the establishment and re-establishment of indigenous plant species with multiple benefits to local population, particularly with respect to improving water availability and water flow despite conditions of climate change. Although the activities are site-specific, the adaptation benefits will accrue at multiple scales, including small highland water catchments to large downstream basins. Downstream benefits of the LDCF project interactions will ensure that the cost-effectiveness of the project interventions is maximised. This will be realised through the achievement of the following outcomes:

1. Increased capacity and knowledge base for assessment, monitoring and forecasting of climate change-induced risks to water in Afghanistan.
2. Climate change risks integrated into relevant policies, plans and programmes.
3. Reduction of climate change vulnerability in the selected project sites through local institutional capacity building and concrete interventions for improved water use efficiency.
4. Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.

Apart from the NAPA priorities mentioned above, the project will also contribute to the attainment of Millennium Development Goals 1 and 7 for Afghanistan, as well as to the achievement of the objectives of *inter alia*: i) the Afghanistan National Development Strategy; ii) the National Agriculture Development Framework; and iii) the Strategic National Action Plan for Disaster Risk Reduction.

The project will be implemented by the United Nations Environment Programme and executed by the Government of the Islamic Republic of Afghanistan's National Environmental Protection Agency.

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ACRONYMS AND ABBREVIATIONS

AGE	Anti-Government Elements
AgroMet	Agro-Meteorology Program
AMA	Afghan Meteorological Authority
ANDMA	Afghanistan National Disaster Management Agency
ANDS	Afghanistan National Development Strategy
APAN	Asia-Pacific Adaptation Network
ARP	Annual Review Process
ARTF	Afghanistan Reconstruction Trust Fund
CBNRM	Community-based natural resource management
CCAU	Climate Change Adaptation Unit
CDC	Community Development Committee
CIA	Central Intelligence Agency
CITES	Convention on the International Trade of Endangered Species
COAM	Conservation Organisation for Afghanistan Mountain Areas
CTAP	Civilian Technical Assistance Programme
DDA	District Development Assembly
DDP	District Development Plan
DEPI	(UNEP) Department of Environmental Policy Implementation
DFID	Department for International Development (UK)
DG	Director General
DRR	Disaster Risk Reduction
EA	Executing Agency
EIRP	Emergency Irrigation Rehabilitation Project
ERDA	Energy for Rural Development in Afghanistan
EWS	Early Warning System
FAO	Food and Agriculture Organisation of the United Nations
FEWSNET	Famine Early Warning Systems Network
FSP	Full-Size Project
GAN	Global Adaptation Network
GAIN	Green Afghanistan Initiative
GCM	Global Climate Model
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEF CCAU	(UNEP) GEF Climate Change Adaptation Unit
GLOF	Glacial Lake Outbreak Flood
GoIRA	Government of the Islamic Republic of Afghanistan
ha	Hectares
IA	Implementing Agency
IC	International Consultant

ICARDA	International Center for Agricultural Research in the Dry Areas
ICE	Inter-Ministerial Committee for Energy
ICIMOD	International Centre for Integrated Mountain Development
IDLG	Independent Directorate of Local Governance
IED	Improvised Explosive Device
IMIS	Integrated Management Information System
INC	Initial National Communication to the UNFCCC
IRDP	Irrigation Restoration and Development Project
ISAF	International Security Assistance Force
IWRM	Integrated Water Resource Management
JSDF	Japanese Social Development Fund
km/h	Kilometres per hour
LOA	Letter of Agreement
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
M&E	Monitoring and Evaluation
MAIL	Ministry of Agriculture, Irrigation and Livestock
MDG	Millennium Development Goals
MEA(s)	Multilateral environmental agreement(s)
MEW	Ministry of Energy and Water
MHP	Micro-Hydro Power
MoF	Ministry of Finance
MOU	Memorandum of Understanding
MRRD	Ministry of Rural Reconstruction and Development
NABDP	National Area-Based Development Programme
NAPA	National Adaptation Plan of Action for Climate Change
NAPWA	National Action Plan for the Women of Afghanistan
NC	National Consultant
NCCC	National Climate Change Committee
NCSA	National Capacity Needs Self-Assessment for Global Environmental Management
NEAC	National Environmental Advisory Council
NEPA	National Environmental Protection Agency
NERAP	National Emergency Rural Access Project
NES	National Energy Strategy
NEX	National Execution
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
NPC	National Project Coordinator
NSP	National Solidarity Programme
NTA	National Technical Adviser
PCDMB	(UNEP) Post Conflict and Disaster Management Branch

PD	Project Document
PDP	Provincial Development Plan
PEACE	Pastoral Engagement, Adaptation, and Capacity Enhancement Project
PMU	Project Management Unit
PROVIA	Programme of Research on Climate Change Vulnerability, Impacts and Adaptation
PSB	Project Support Board
PSC	Project Steering Committee
RAMA	Rehabilitation of the Afghan Meteorological Authority
RIMES	Regional Integrated Multi-hazard Early Warning System
SA	Senior Adviser
SCWAM	Supreme Council for Water Affairs and Management
SEI	Stockholm Environmental Institute
SNAP	Strategic National Action Plan for Disaster Risk Reduction
SOPs	Standard Operating Procedures
TE	technical evaluations
TM	Task Manager
TORs	Terms of Reference
UNAMA	United Nations Assistance Mission in Afghanistan
UNCBD	United Nations Convention of Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNCT	United Nations Country Team
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOCA	United Nations Office Complex in Afghanistan
USGS	United States Geological Survey
USSR	Union of Soviet Socialist Republics
VIA	Vulnerability, Impacts and Adaptation
VRA	Vulnerability Risk Assessment
WB	World Bank
WMO	World Meteorological Organization

SECTION 2: BACKGROUND AND SITUATION ANALYSIS

2.1 Background and context

1. This proposal seeks funding from the Least Developed Countries Fund (LDCF) to implement the Full-Size Project (FSP) “Building adaptive capacity and resilience to climate change in Afghanistan”, hereafter referred to in this document as “the LDCF project.” The LDCF project aims to reduce the vulnerability of Afghanistan’s rural communities and economy to present climate variability and future climate change risks, particularly those associated with future changes in rainfall and temperature regimes. In this regard, the LDCF project will: i) strengthen the capacity of the country to undertake monitoring and forecasting of climate change risks in Afghanistan; ii) create an enabling policy environment to promote climate change adaptation through ecosystem management; iii) promote an ecosystem management approach to climate change adaptation; and iv) increase knowledge of good practices for increasing resilience to climate risks at the local, provincial and national levels. In so doing, the project will enhance Afghanistan’s capacity to conduct effective climate change adaptation planning at the national level.
2. In addition, the project will pilot small-scale interventions in different ecosystems within four selected provinces to demonstrate ways in which agricultural productivity and water flow can be promoted under conditions of climate change through improvements in the functioning of degraded ecosystems. In the process, the project will address the following high priority areas of intervention identified during Afghanistan’s National Adaptation Plan of Action (NAPA) process: “1: Improved water management and use efficiency”; and “2: Community-based watershed management”. It will also address the identified NAPA priority “Improved terracing, agroforestry and agro-silvo pastoral systems” as well as several low priority NAPA objectives (“Climate-related research and early warning systems”, “Improved food security”, and “Rangeland management”). The project will be implemented using the National Execution (NEX) modality by Afghanistan’s National Environmental Protection Agency (NEPA). However, the United Nations Environment Programme (UNEP) will provide considerable project support to complement national structures, since the management and coordination policy within national government structures is still being developed.

Political context

3. Afghanistan has been in a state of war or political disturbance since the invasion of the country by the Union of Soviet Socialist Republics (USSR) in 1979. The absence of a stable government and the destruction of many public institutions left a significant gap in terms of governance that is being carefully addressed by the new government. After the fall of the Taliban in 2001, an Afghan Interim Authority was established, and a large number of international aid organisations set up operations to assist in the establishment of large-scale reconstruction and humanitarian programmes. The current government came into being in 2004 after a presidential election, and the most recent parliamentary election was held in September 2010. Over the extended period of disturbance, millions of people were internally displaced or became refugees in neighbouring countries¹. Since 2004, many of these refugees and internally displaced persons (IDPs) have been returning to Afghanistan and to their home areas².
4. At present (2012) there is still considerable civil disturbance by anti-government elements (AGE) in many areas of Afghanistan. This disturbance is a challenge to effective

¹ Saba, D. 2001. Afghanistan: Environmental degradation in a fragile ecological setting. *International Journal of Sustainable Development and World Ecology* 8 (4), p279-289.

² IOM. 2007. Assisted Voluntary Return and Reintegration project. International Organization for Migration. Description available at: <http://bit.ly/qaaQVV> [Accessed on 16/08/2011].

operations by international organisations such as UNEP. Lack of security was viewed as the biggest problem facing Afghanistan by more than a third of respondents in a recent survey, and certain areas of the country are still not readily accessible as a result of instability and frequent fighting. The issue of security for field operations has been borne in mind in the context of the proposed activities³, and potential threats of injury and abduction for field operatives has meant that some otherwise optimal areas have been excluded from project activities.

5. Political disturbance and conflict have inflicted significant damage to the environment as well as human wellbeing⁴. These impacts include the large scale removal of vegetation near roadsides, as well as the degradation or deliberate destruction of farmland and many forested areas. It has also reduced the capacity of government entities to enforce conservation legislation, resulting in widespread unsustainable resource usage throughout the country⁵.

Geographical context

6. Afghanistan is a land-locked and predominantly mountainous country in central Asia with a total area of 647,500 km². Over 27% of the country lies above 2,500 m elevation⁶, with extensive plains regions in the southwest lying between 500 and 1,500 m, and the fertile northern plains positioned below 500 m. Afghanistan borders Iran in the east, Tajikistan, Uzbekistan, and Turkmenistan in the north, and China and Pakistan in the west. Rivers flow from the central Afghan highlands to all bordering countries.

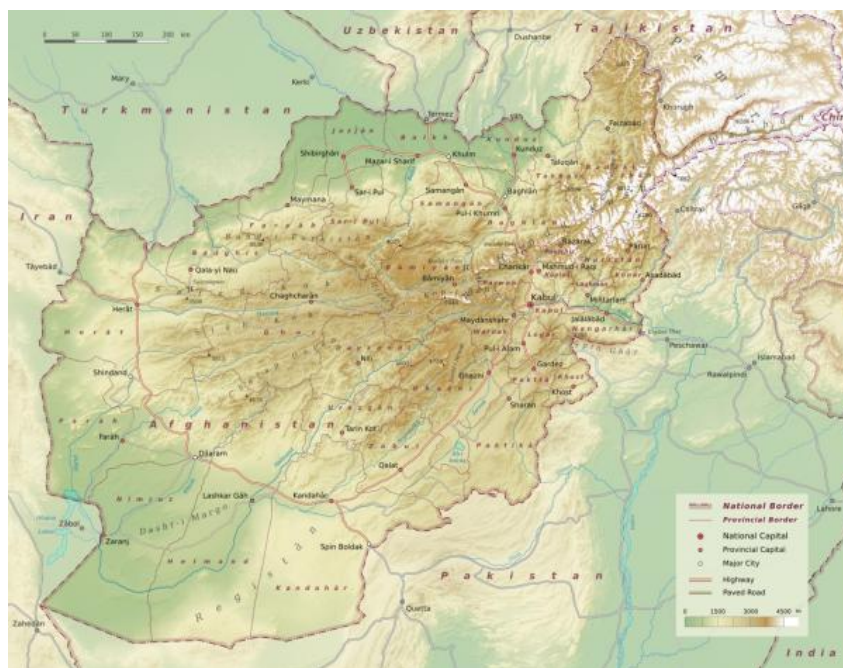


Figure 1: Political boundaries and topography of Afghanistan. Boundaries incorporate changes arising from the 2005 administrative reforms (Source: Wikimedia commons; prepared by Sommerkom).

³ Asia Foundation. 2011. Afghanistan in 2011: A Survey of the Afghan People

⁴ Saba, S. 2001. Afghanistan: Environmental degradation in a fragile ecological setting. International Journal of Sustainable Development. World Ecology 8: 279-289.

⁵ Saba, S. 2001. Afghanistan: Environmental degradation in a fragile ecological setting. International Journal of Sustainable Development. World Ecology 8: 279-289.

⁶ United Nations Environment Programme (UNEP). 2003. Post-conflict environmental Assessment: Afghanistan. UNEP, Geneva.

Socio-economic climate

7. Afghanistan is one of the poorest countries in the world. Afghanistan's Human Development Index is the lowest in the Asia-Pacific region⁷ and is ranked 155 out of 169 in the world by the United Nations Development Programme⁸. Gross Domestic Product (GDP) has increased significantly since 2003, with significant gains of 22.5% in 2009/2010⁹. GDP growth, however, is still volatile as a result of a heavy dependence on unreliable rain-fed agricultural production. Afghanistan has a high incidence of poverty (36%), with 50% of the population earning less than 20% over the poverty threshold and therefore classed as 'poverty vulnerable'¹⁰.
8. Despite rapid economic growth over the period 2001 – 2011, the GIRoA has a very limited financial base. However, the total revenue collected is growing rapidly and is now 10% of GDP (US\$ 1.7 billion in total). This is as a result of improvements in the tax collection system. Nevertheless, Afghanistan's current operational budget is significantly larger than the revenue, and a large component of the public spending is consequently provided by external sources. In the fiscal year 2011/12, domestic revenues were budgeted to cover 72% of operations and 48% of the total core budget. This, in combination with the large fraction of development spending funded through donor support (85% of the total development budget), illustrates the financial difficulties Afghanistan faces when trying to undertake additional activities to address climate change¹¹.
9. Afghanistan's population is estimated to be 29.8 million¹². This, however, is a best guess figure as the last census was undertaken in 1979. A census is currently underway (2011). Annual population growth has been estimated at 2.4%¹³, placing Afghanistan among the 50 countries with the fastest growing populations in the world. The median age of 18.2 years¹⁴ indicates a predominantly young population. The percentage of the population living in urban areas is low at 23% of the total, although the rate of increase of urbanisation, at 4.7% per annum, is significantly higher than the global average of 1.98%¹⁵. Kabul, with a population of 3.6 million, has a considerably larger population than its infrastructure can accommodate.
10. There are a large number of different tribes and ethnic groups in Afghanistan. The majority of the population are Pashtun (42%), with Tajik, Hazara and Uzbek making up another 45%¹⁶. The remainder of the population are principally Aimak, Turkmen, Baloch, Gojor, Nooristani, Pashayee or Brahawai¹⁷. The principal languages are Dari and Pashto.
11. An estimated 75% of the population lives in rural areas, which is amongst the highest fractions in the world¹⁸. Globally, rural populations are typically more vulnerable to climate change impacts, and this is the case within Afghanistan. Fertility, child mortality and

⁷UNDP. 2010. Global Human Development Report 2010 - The Real Wealth of Nations: Pathways to Human Development. United Nations Development Programme. New York, USA

⁸UNDP. 2011. Afghanistan Human Development Report 2011 – The forgotten front: Water security and the crisis in sanitation. United Nations Development Programme.

⁹World Bank (2010) Afghanistan Economic Update: October 2010. The World Bank. Washington, DC.

¹⁰ICON Institute. 2008. National Risk and Vulnerability Assessment (NRVA) 2007/2008. ICON INSTITUTE GmbH & Co. KG Consulting Group. Kabul, Afghanistan

¹¹World Bank. 2011. Afghanistan Economic Update October 2011.

¹²CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

¹³World Bank. (2011) *World Development Indicators 2011*. World Bank. Washington, DC. Available from: http://siteresources.worldbank.org/DATASTATISTICS/Resources/wdi_ebook.pdf [Accessed August 29, 2011].

¹⁴CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

¹⁵CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

¹⁶CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

¹⁷NEPA, 2009. Afghanistan: National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA), Nairobi, Kenya: Afghanistan National Environmental Protection Agency in association with the United Nations Environment Programme.

¹⁸World Bank, World Development Indicators. Available from: <http://bit.ly/9B9XqR> [Accessed August 30, 2011].

poverty are higher in rural areas, and education is generally lower¹⁹. The rural population depends principally on agriculture for both their income and for subsistence, and is therefore highly vulnerable to climate fluctuations such as drought, floods, or increased climatic variability.

Education

12. Under the Taliban regime, women were largely excluded from formal education, and this is still to some extent a problem in Afghanistan. In the eastern parts of the country, AGEs have been observed to attack girls' schools in an attempt to dissuade the educating of women. The literacy rate is very low (28%) and the legacy of historical gender imbalances in education are reflected in the even lower (12.6%) literacy rate amongst women²⁰. The Afghan government and its development partners have made concerted efforts to expand access to education in line with the Millennium Development Goals (MDGs). Enrolment in schools has increased from less than a million in 2001 to over 7.3 million in 2010, with girls making up 38% of the enrolment²¹.
13. There has however been no significant expansion in the number of skilled researchers and qualified personnel at tertiary level²². Kabul University, in common with many of the other institutes of higher learning, was basically non-operational after 1992 as a result of damage, loss of staff (who often fled to other countries) and limited resources and political interference. Higher education has received considerable investment from the international community post-2001, and the Kabul University re-opened in 2002.

Agriculture

14. Agriculture is the largest economic sector in the country, contributing 32.5% of the GDP and employing 78.6% of the total labour force²³. Eighty five percent of the Afghan population derives its livelihood directly or indirectly from agriculture. There are two basic farming systems in Afghanistan, namely: i) a mixed crop and livestock system; and ii) the Kuchi pastoral system. The latter is named after the nomadic Kuchi communities who undertake a seasonal migration to transfer their grazing animals between lowland and highland pastures. It is estimated that between 12-15% of the total area of Afghanistan is suitable for cultivation but only a small part of this area is currently productive as a result of agricultural land and pasture degradation and abandonment. Plot sizes are small (averaging 7 jerib²⁴ for irrigated land and 14 jerib for rain-fed land²⁵) and many farmers remain food insecure with ~ 60% relying on off-farm income. It is also estimated that 80% of the land has highly erodible soils, irregular rainfall events and soil erosion as a result of tectonic activity²⁶. Furthermore, urban centres have encroached upon fertile agricultural land and important wetlands have been drained for urban expansion.
15. Precipitation and agricultural production are positively correlated throughout much of the country, demonstrating that water underpins agricultural productivity. Irrigation water

¹⁹ ICON. 2008. National Risk and Vulnerability Assessment (NRVA) 2007/2008: A profile of Afghanistan. Icon Institute/EU

²⁰ CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

²¹ MoE 2011. Response to the EFA Global Monitoring Report – 2011 (Afghanistan Section). Ministry of Education. Kabul, Afghanistan.

²² GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

²³ World Bank, World Development Indicators. Available from: <http://bit.ly/9B9XqR> [Accessed August 30, 2011]

²⁴ The jerib is a traditional measure of land area used in the Middle East and south-western Asia. It varies from one part of the world to another, but has become standardised to roughly 1/5 of a hectare (i.e.: 14 jerib = 2.8 ha).

²⁵ ICON. 2008. National Risk and Vulnerability Assessment (NRVA) 2007/2008: A profile of Afghanistan. Icon Institute/EU.

²⁶ Tectonic activity such as earthquakes can result in landslides and slippages, causing rapid loss of topsoil of whole hillsides. Savage, M., Dougherty, B., Hamza, M., Butterfield, R. & Bharwani, S. 2008. Socio-economic impacts of climate change in Afghanistan. A report to the UK Department for International Development Final Report CNTR- 08 8507, Stockholm Environment Institute, Oxford.

is an extremely scarce resource, especially during the hot, dry summers and years of extended drought. Although estimates vary, it is held that about 3.3 million ha (5% of the total land area) is irrigated and regularly cropped, while 4.5 million ha (7%) is rain-fed and cropped opportunistically. The majority of agriculture in highland areas occurs in river valleys, where irrigation is simple, whilst in the plains areas to the north and southwest, most of the population lives in close proximity to the main rivers in order to benefit from simple irrigation measures or artesian wells.

16. A wide variety of crops is grown throughout Afghanistan. Major crops include maize and potato, which are grown only in specific areas, and wheat, which is grown in all settled areas. Tree fruits (apricot, almond, walnut and mulberry) and grapes are also grown throughout the country. In addition to this, pastoralism produces mutton, sheepskins, and lambskins²⁷. Export products include fruit and nuts, wool, cotton, hides and pelts, hand-woven carpets, and semi-precious gems²⁸, with only the latter being derived from non-agricultural or non-pastoral activities. The primary export markets are the USA (26.7%), India (23.09%), Pakistan (17.36%) and Tajikistan (12.51%)²⁹. During the years of turmoil between 1978 and 2004, agricultural production declined by an average of 3.5% a year. As much as 50% of the national livestock herd was lost between 1997 and 2004. Between 2004 and 2007, performance in the agricultural sector has been positive. For example³⁰:

- 5.5 million metric tons of wheat and other grains were produced in 2007 compared to 3.7 million metric tons in 2002;
- 0.9 million metric tons of horticulture and industrial crops were produced in 2007 compared to 0.4 million metric tons in 2002;
- 3.2 million animals received veterinary and health services; and
- 5,000 metric tons of improved wheat seed was produced and distributed to farmers in 28 provinces.

17. Agricultural performance, in particular cereal production, has been hampered in recent years. This is primarily as a result of reduced production from poor rains and snows in 2008/2009 (see paragraph 31 below). Export restrictions to neighbouring countries such as Pakistan and high levels of cereal imports from Pakistan, Kazakhstan, Uzbekistan and Iran have also played a role in the poor performance of this sector.

18. Although campaigns for the eradication of poppy cultivation are underway in the country and the number of poppy-free provinces has increased from six to 20 since 2001, Afghanistan is still currently a world leader in the production of illegal opium. Net opium cultivation covers 123,000 ha of land with a production of ~ 3,100 metric tons worth ~ US\$ 604 million (~ 5% of Afghanistan's legal GDP) in 2010³¹. In addition to being profitable, opium is a drought-resistant crop, and as such has been a source of income for many communities in times of failing crops and water scarcity³².

Energy sector

19. The energy sector in Afghanistan is poorly developed. The bulk of Afghanistan's electricity (60.9%) is imported from neighbouring countries, with local hydro-electric power generation making up the next largest portion (35.2%), and the remainder being

²⁷ CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

²⁸ CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

²⁹ CIA World FactBook: Afghanistan. Available from: <http://1.usa.gov/15B6Vg> [Accessed March 17, 2011].

³⁰ IRA. 2008. Afghanistan National Development Strategy, 1389 - 1391 (2008 - 2013).

³¹ Afghanistan Opium Survey 2010, September 2010, United Nations Office on Drugs and Crime and GIRoA. Available from: <http://bit.ly/bzjbWWW>.

³² ICON Institute. 2009. National Risk and Vulnerability Assessment (NRVA) 2007/2008. ICON INSTITUTE GmbH & Co. KG Consulting Group. Kabul, Afghanistan

supplied by local thermal power generators³³. The establishment of the Inter-Ministerial Committee for Energy (ICE) in 2006 spurred significant improvements in electricity supply³⁴, and by 2010 total annual electricity supply reached nearly 2.6 million kWh (up from 1.3 million in 2006). Over the same period, local generation capacity increased by 20%, with hydro-electric power generation increasing 40%. There is still considerable untapped potential for hydro-electric power generation in Afghanistan (18,000 MW in the Panj and Amu Darya Rivers alone), and in many areas micro-hydro power (MHP) plants³⁵ have been established to provide power at a local scale. However, it is predicted that the rate of glacial melt will increase in the near future, causing glacial retreat and ultimately reducing the availability of water for power in the Amu Darya basin³⁶.

20. Only 20% of Afghanistan's population and less than 5% of the rural population has access to grid-supplied power. The majority of the population is consequently dependent on biomass for their heating and cooking needs. In rural areas, wood for cooking is collected from distances of up to 20 km away³⁷. As a result, settlements are surrounded by concentric rings of deforestation ranging from hundreds of metres up to ten kilometres or more. The interior rings are practically devoid of vegetation³⁸. Heating is often supplied through the burning of dried animal dung and 86% of the population relies on kerosene for lighting. The rural demand for wood is driven by the high demand for wood in urban areas. Consequently, wood collection is a significant source of income for many rural communities³⁹.

Water resources

21. More than 80% of Afghanistan's water resources originate in the Hindu Kush Mountains at altitudes above 2,000 m⁴⁰. The mountains operate as a natural storage facility and source of water by accumulating snow and ice during winter and releasing the frozen water as melt waters from snow and glaciers during spring and summer. Additionally, the mountains also contribute to the sustenance of vital spring and summer river flow by capturing and conducting water from orographic rainfall, although this is generally fairly limited. Afghanistan shares four major river basins with six neighbouring countries: Iran, Pakistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. The basins are (Figure 2):

- the Amu Darya river basin in the northeast;
- the Helmand river basin in the southwest;
- the Kabul river basin in the east; and
- the Harirud-Murghab river basin in the northwest.

³³AEIC. 2011. Monthly Power Production statistics for Afghanistan. Afghan Energy Information Center. Available online at: http://www.afghaneic.org/database/view_monthly_all.php. [Accessed on 16/08/2011]

³⁴GIRoA, 2007. Afghanistan National Development Strategy (ANDS) 1389 - 1391 (2008 - 2013): A Strategy for Security, Governance, Economic Growth & Poverty Reduction, Kabul, Afghanistan: Islamic Republic of Afghanistan

³⁵MHP is a means of generating electricity at a small scale for local communities by tapping into the hydroelectric potential of small rivers. These plants typically cost between \$25,000 and \$165,000 to build, and generate from 10 to 50 kW of electricity for neighbouring areas. This is a preferred method of providing rural power, since it minimises the amount of additional infrastructure required for transmission, which is a significant cost in rural and hilly areas.

³⁶Government of Uzbekistan. 2007. Second National Communication to the UNFCCC.

³⁷Pittroff, W., 2011. Rangeland management and conservation in Afghanistan. *International Journal of Environmental Studies*, Online release pp.1-16

³⁸Freitag, H., 1971, Die natürliche Vegetation Afghanistans, Beiträge zur Flora und Vegetation Afghanistans 1. *Vegetatio*, 22, 285-344.

³⁹Grace, J. and Pain, A. 2004. Rethinking Rural Livelihoods in Afghanistan. Afghanistan Research and Evaluation Unit (AREU).

⁴⁰King, M. & Sturtewagen, B. 2010. Making the most of the Afghanistan's river basins. Opportunities for regional cooperation. EastWest Institute, New York.



Figure 2: Afghanistan's river basin systems.

22. Afghanistan has the lowest water storage capacity per capita in the Central Asia region⁴¹. Each year, the country loses about two-thirds of the water it obtains from rainfall, snow and glacial melts to Pakistan, Iran and Tajikistan. The country needs new dams to increase storage capacity and improve irrigation efficiency. Even local-level check dams are often damaged as a result of the long period of conflict, and consequently small-scale irrigation structures are frequently ineffective. The Afghan government has formulated plans for significant water infrastructure development on the country's major rivers to mitigate floods and droughts and to exploit their irrigation and energy generating potential (see paragraph 97). However, as a result of limited bilateral or regional cooperation on water resource management between Afghanistan and its neighbours⁴², the implementation of these plans could affect trans-boundary water flows and therefore become a source of tension.
23. Most of the irrigated land lies in the Amu Darya River basin north of the main Hindu Kush mountain range while the remainder occurs in river basins draining from the central massif to the southwest, west and southeast. The largest of these smaller irrigated areas occurs in the Helmand River basin. Only 10% of the irrigated land uses modern

⁴¹King, M. & Sturtewagen, B. 2010. Making the most of the Afghanistan's river basins. Opportunities for regional cooperation. EastWest Institute, New York.

⁴²The Helmand River is the only river on which Afghanistan has entered into a formal agreement with a neighbouring country (Iran).

engineered systems while the rest depends on traditional irrigation methods. In many cases, irrigation depends on small open canals drawing from rivers or use of aquifers. The majority of these aquifers are being degraded as a result of unsustainable abstraction rates and insufficient conservation of recharge basins. In addition, war-inflicted damage to irrigation infrastructure and the frequent disruption of water supplies prevent the use of this essential resource by many Afghan farmers. The existing irrigation system is operating at a low efficiency rate, losing as much as 75% of the water to leakage and evaporation⁴³. The majority of remaining irrigation infrastructure is small-scale and used by rural farmers. However, several infrastructural programmes including the National Solidarity Programme (NSP), and peacebuilding exercises by the US Army are focussing on providing large-scale irrigation improvements, particularly in the arid southwest of the country.

Forest and land cover

24. Afghanistan is geographically and ecologically diverse with four broad ecoregions, namely: i) temperate coniferous forests in the east; ii) temperate grasslands, savannas and shrublands in the northern region; iii) montane grasslands and shrublands in the northern, southern and western parts of the mountainous regions; and iv) deserts and xeric shrublands in the southwest⁴⁴. Of the 15 vegetation types identified in one national study, 12 were dominated by woody vegetation⁴⁵. However, vegetation cover in Afghanistan has been modified significantly and most of the country is degraded at varying levels of severity. An estimated 45% of the country (30 million hectares) is used as rangeland for grazing livestock⁴⁶.

25. Open woodland dominated by pistachios, almonds and junipers once occupied a third of the land area, but this woodland has been removed to a large extent. By the 1950s, tree cover in the country had been reduced significantly to a total of ~ 3.1–3.4 million hectares. It now stands at less than 1 million hectares (2% of county's total area). The forest area has declined at the rate of 3% a year from 2000 to 2005 (equal to a removal and conversion rate of 30,000 hectares of forest land per annum)⁴⁷. The primary cause of woody vegetation degradation is over-grazing and –browsing by goats and collection of firewood (see paragraph 20). The removal of tree species that produce commercially valuable and subsistence food species (e.g. pistachios and almonds) is indicative of the desperate shortage of wood in the country. There are some attempts to restore forest cover in Afghanistan (notably the Green Afghanistan Initiative (GAIN) which ended in 2010), with a focus on planting particular indigenous tree species. Formal reforestation policies have not yet been developed by the country, and no large scale reforestation efforts are yet underway, although there is a growing recognition of the desirability of such policies within relevant government agencies. In addition, no formal forestry industry is currently in place, which makes the regulation of wood harvesting difficult.

Conservation

26. Conservation activities in Afghanistan iare presently under-developed, since it has been a low priority for government during the last thirty years of conflict and civil

⁴³ Afghanistan national capacity needs self-assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA). Final Joint Report, 2009. UNEP, NEPA and GEF.

⁴⁴ UNEP, 2008. Biodiversity profile of Afghanistan. An output of the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) for Afghanistan. Kabul, Afghanistan.

⁴⁵ Freitag, H., 1971, Die natürliche Vegetation Afghanistans, Beiträgezur Flora und Vegetation Afghanistans 1. *Vegetatio*, 22, 285–344.

⁴⁶ Afghanistan's environment 2008, National Environment Protection Agency of the Islamic Republic of Afghanistan & United Nations Environment Programme.

⁴⁷ Afghanistan's environment 2008, National Environment Protection Agency of the Islamic Republic of Afghanistan & United Nations Environment Programme.

disturbance. The first national park (Ban-e-Amir National Park) was gazetted in 2009, reflecting a growing consciousness in government that conservation is an essential component in promoting development and improving livelihoods. There is a strong tradition of hunting in Afghanistan⁴⁸, and although a presidential decree in 2004 forbade hunting, it has proved hard to enforce⁴⁹. The Environment Law was passed in 2007, and drafts of the Forest Law and Rangeland Law have been drawn up (see paragraphs 105 to 108).

General climatic conditions

27. Afghanistan is a semi-arid country characterised by cold winters and hot summers⁵⁰. The overall average rainfall is 250 mm per annum, but there is strong topographically induced variation between different parts of the country, from as low as 50 - 60 mm in the southwest to 900 – 1,200 mm in the high northeast^{51,52}. The majority of the precipitation is in the form of snowfall in winter and early spring (i.e. between November and April, with peaks in February/March⁵³). The Asian summer monsoon tends to suppress rainfall over Afghanistan. Consequently, there is a heavy reliance on rivers and snowmelt for agricultural production in much of the country, particularly the dry plains areas that receive very little precipitation.
28. The country experiences extreme seasonal temperature variations⁵⁴ (e.g. daily average temperature in Kabul ranges from -12°C in winter to 25°C in summer). Much of the country is at very high altitude, and experiences low temperatures, with the highest regions recording minimum temperatures as low as -46°C in winter⁵⁵. In contrast, the southern plains are particularly hot, with average summer temperatures exceeding 33°C (the maximum recorded temperature is 51°C), and the mean winter (December to February) temperature reaching only 10°C⁵⁶.
29. Annual evaporation ranges from 900 – 1200 mm in the Hindu Kush mountains to 1,400 – 1,800 mm in the southern plains⁵⁷. This tends to exceed the precipitation in many areas and lead to desiccated soils that are particularly vulnerable to wind erosion. Consequently, dry periods are characterised by dust storms, which are associated with northerly winds in the warm months.

Observed climate hazards and climate change trends and impacts

30. Long-term climatic records for Afghanistan are fragmentary as a result of large-scale loss of records that occurred during Taliban rule, the difficulties experienced in data collection during long periods of political instability, and the limited capacity of the country's meteorological monitoring system⁵⁸. However, the Pastoral Engagement,

⁴⁸Afghanistan's environment 2008, National Environment Protection Agency of the Islamic Republic of Afghanistan & United Nations Environment Programme.

⁴⁹MAIL. 2007. Afghanistan's Third National Report to the UN Convention on Biological Diversity. Ministry of agriculture, Irrigation and Livestock. Kabul, Afghanistan

⁵⁰GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁵¹UNEP & NEPA, 2008. Afghanistan's Environment 2008, Zurich, Switzerland: United Nations Environmental Programme.

⁵²GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁵³Savage, M., Dougherty, B., Hamza, M., Butterfield, R., and Bharwani, S. 2009. Socio-economic impacts of climate change in Afghanistan. A report to the Department of International Development (DFID).

⁵⁴Savage, M., Dougherty, B., Hamza, M., Butterfield, R., and Bharwani, S. 2009. Socio-economic impacts of climate change in Afghanistan. A report to the Department of International Development (DFID)

⁵⁵GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁵⁶Savage, M., Dougherty, B., Hamza, M., Butterfield, R., and Bharwani, S. 2009. Socio-economic impacts of climate change in Afghanistan. A report to the Department of International Development (DFID).

⁵⁷UNEP & NEPA, 2008. Afghanistan's Environment 2008, Zurich, Switzerland: United Nations Environmental Programme.

⁵⁸Dr Noori, Director of Afghan Meteorological Authority (AMA). Personal communication with International Consultant (IC) on 28 June 2011.

Adaptation, and Capacity Enhancement (PEACE) Project and the Stockholm Environment Institute (SEI) have accessed some historical data and are addressing gaps and errors in the data where possible⁵⁹. Within the limitations of this data, the observed climate changes in Afghanistan over the recent past (1960 – 2008) include:

- an increase in both the rate of incidence and the duration of drought periods⁶⁰;
- an increase in the mean annual temperature by 0.6°C since 1960, with an average change of 0.13°C per decade⁶¹;
- an increase in the frequency of hot days and nights by 25 days per year (an additional 6.8%)⁶²;
- a moderate reduction in rainfall at a national scale (0.5 mm per month since 1960)⁶³; and
- an increase in seasonal variation in precipitation at a regional level, reported⁶⁴ as extreme snowfall, floods and droughts⁶⁵.

31. Nearly all of Afghanistan's provinces have been affected by at least one natural disaster in the last three decades. The principal climate hazard experienced by Afghanistan is drought⁶⁶, which affects all provinces as a result of the high dependence on rain-fed crops. The country experienced repeated droughts in 1963-64, 1966-67, 1970-72, 1998-2006⁶⁷, and 2008-09, which led to significant crop losses. The impacts of the 1998-2006 drought were particularly severe and resulted in a shortage of food for over 2 million people as well as losses of:

- 75% of all wheat;
- 85% of rice;
- 85% of maize;
- 50% of potato; and
- 60% of overall farm production.

32. These crop losses and damages have severely impacted the growth of the economy over the period 2008/2009. Additional impacts of drought include malnutrition, increased spread of diseases, and an increased likelihood of internal displacement as people move from highly impacted areas. Furthermore, desertification and land degradation are associated with drought because people make additional harvesting demands on natural ecosystems. The reduced productivity of degraded and desertified land reduces the resilience of ecosystems and increases the vulnerability of local communities to further climate change impacts. Records indicate that desert areas have expanded within Afghanistan since 1960⁶⁸, and that the incidence of degraded land has increased significantly over that same period.

⁵⁹ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁶⁰ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁶¹ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA)..

⁶² GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁶³ GIROA. 2012 Initial National Communication to the UNFCCC [Draft]. Government of the Islamic Republic of Afghanistan.

⁶⁴ These regional variations are reported through informal structures as a result of the limited meteorological monitoring capacity of the country, but are nevertheless indicative of a moderate shift in variation.

⁶⁵ Savage, M., Dougherty, B., Hamza, M., Butterfield, R., and Bharwani, S. 2009. Socio-economic impacts of climate change in Afghanistan. A report to the Department of International Development (DFID).

⁶⁶ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁶⁷ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁶⁸ UNEP & NEPA, 2008. Afghanistan's Environment 2008, Zurich, Switzerland: United Nations Environmental Programme

33. The plains of the western and southern regions experience the “wind of 120 days” through the summer months of June to September. The wind, which can reach speeds of over 150 km/h⁶⁹, is associated with intense heat and sand storms. The intensity and extent of the wind has increased in recent years, reaching as far as Bamyan in the central highlands. The wind reduces agricultural productivity in affected areas through wind erosion of topsoils and damaging crops and livestock. It also negatively impacts human health by raising the incidence of respiratory diseases⁷⁰.

⁶⁹ Peter R. Blood, ed. 2001. *Afghanistan: A Country Study*. Washington: GPO for the Library of Congress. Available from: <http://countrystudies.us/afghanistan/> [Accessed 27 June 2011].

⁷⁰ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

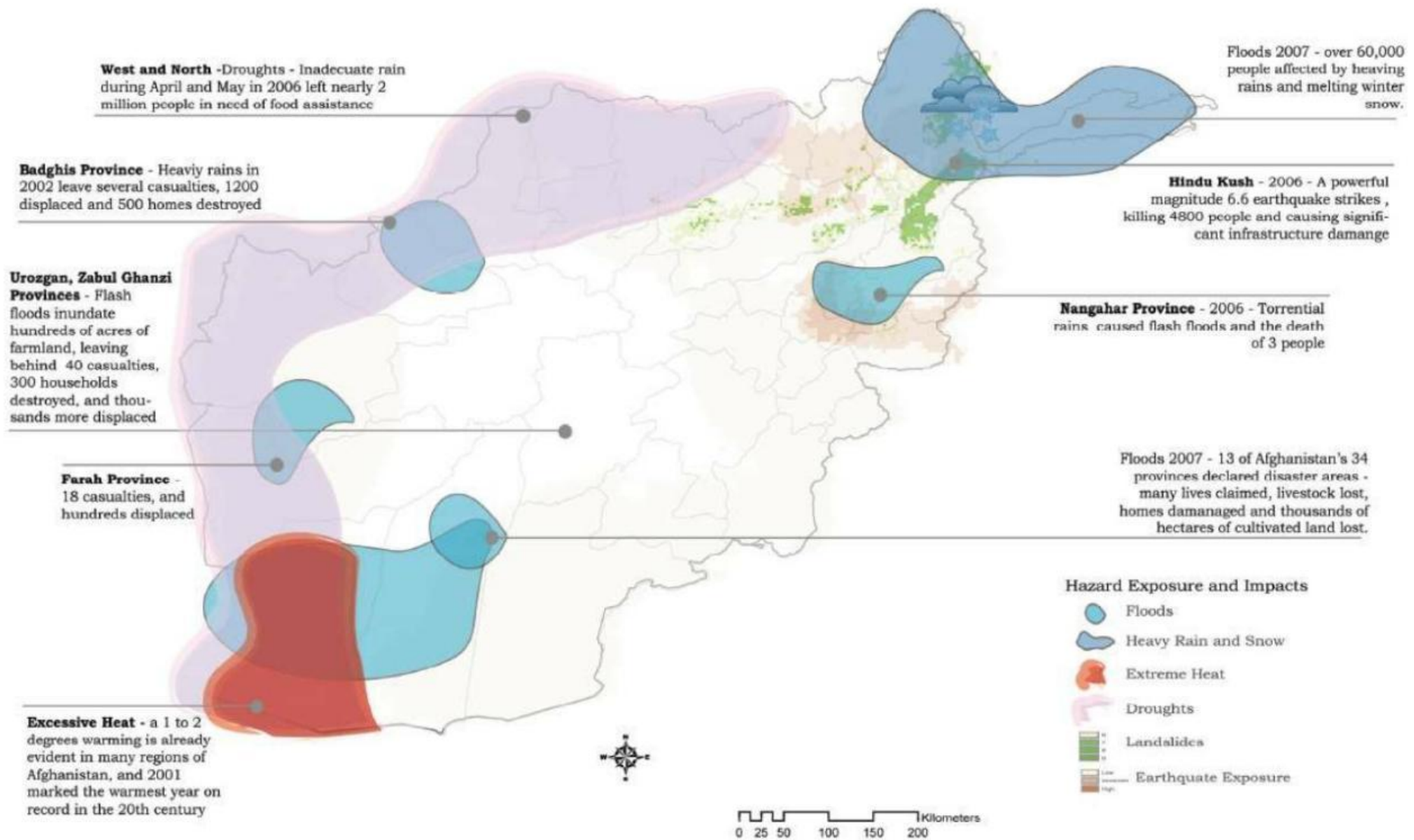


Figure 3: Recent climate hazards experienced in Afghanistan. This may be used as a rough indicator of vulnerable areas within the country, but it is not comprehensive or detailed enough to inform national and provincial planning. [Source: Savage et al., 2008].

34. Flooding and landslides are common in Afghanistan's mountain and valley regions, particularly during snow melt in spring and summer. Flooding occurred in 2003 after unusually heavy snowfall, and further flooding in 2005 affected the northern, central and western provinces⁷¹. Floods and landslides between March and June 2007 claimed 118 lives⁷², affected more than 3,000 families, and destroyed thousands of hectares of agricultural land resulting in 13 provinces being declared disaster areas by the government⁷³. Glacial lake outburst floods (GLOFs) in the central and northern highlands are also a real risk in summer when melt water can break through terminal moraines and cause flash flooding^{74,75}. Flooding causes rapid erosion of soils, as well as short-term inundation and damage to crops. Furthermore, damage to infrastructure such as roads, bridges and hydro-electric power installations can have long-term effects that are extremely difficult and costly to repair.

Climate change predictions and predicted impacts.

35. Afghanistan is rated as one of the countries that are most vulnerable to climate change⁷⁶ as a result of both the potential impacts of climate change on the country, and its limited capacity to react to these impacts. The most likely effects of climate change are predicted to be⁷⁷:

- an increase in mean annual temperatures by 1.4°C by the 2020s, with estimates for temperature rise in 2090 ranging from 2.8°C to 5.0°C;
- an increase in the frequency of 'hot' days by up to 32% by 2090;
- a decrease in mean annual rainfall, largely as a result of reductions in wet season (winter/spring) precipitation; and
- an increase in the intensity of rainfall events despite overall decreases in total precipitation.

36. These trends are anticipated to increase the occurrence of climatic hazards such as drought, flooding from melting snow and untimely or heavy rainfall, cold spells, increased average temperature and 120-day winds⁷⁸. The vulnerability and adaptation assessment undertaken in the Initial National Communication (INC) reiterated the findings of the NAPA, identifying an upward tendency in the likely occurrence of all climate-related hazards.

37. Climate change impacts are likely to negatively affect a number of different socio-economic sectors in Afghanistan. The most significant impacts are likely to be on the important **agriculture sector**, upon which the majority of the Afghan population depends for its livelihood. Decreased mean annual rainfall and the increased incidence of drought will lead to reduced viability of rain-fed and dry land farming in many areas. Small-scale traditional irrigation will also be impacted as rivers dry up. The predicted temperature rise will increase soil evaporation and reduce soil water availability, which will further exacerbate the severity of droughts when they occur⁷⁹. Loss of soil from degraded land will increase as intense precipitation events promote erosion and frequent droughts increase vegetation degradation.

⁷¹ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁷² IFRC. 2007. Information Bulletin 03/2007. Afghanistan: Floods

⁷³ Savage, M., Dougherty, B., Hamza, M., Butterfield, R., and Bharwani, S. 2009. Socio-economic impacts of climate change in Afghanistan. A report to the Department of International Development (DFID).

⁷⁴ UNEP & NEPA, 2008. Afghanistan's Environment 2008, Zurich, Switzerland: United Nations Environmental Programme.

⁷⁵ Ives, J., Shreshtha, R. and Mool, R. 2010. Formation of Glacial Lakes in the Hindu Kush-Himalayas and GLOF Risk Assessment. International Centre for Integrated Mountain Development. Kathmandu Nepal

⁷⁶ Maplecroft. 2010. Climate Change Vulnerability Index 2010. Bath, UK, Maplecroft.

⁷⁷ McSweeney, C., New, M. & Lizcano, G., 2008. UNDP Climate Change Country Profiles: Afghanistan, Oxford, UK: UNDP. Available at: <http://country-profiles.geog.ox.ac.uk> [Accessed August 19, 2011].

⁷⁸ GIROA. 2012. Initial National Communication to the UNFCCC. Government of the Islamic Republic of Afghanistan.

⁷⁹ WeAdapt, 2010. Available from: <http://WeAdapt.org>.

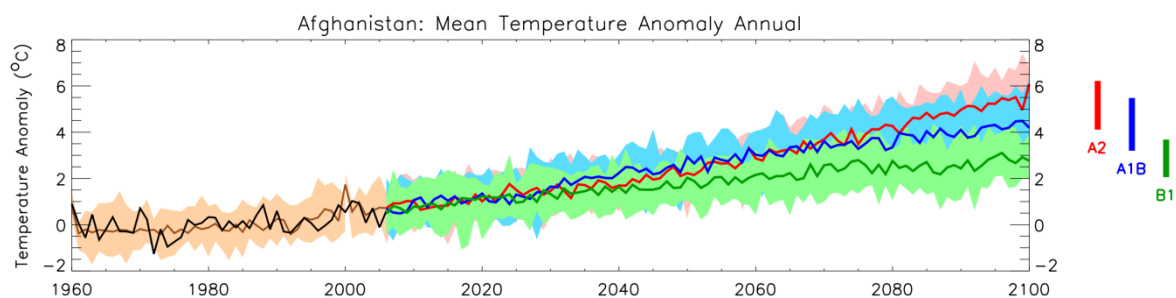


Figure 4: Trends in annual mean temperature for the recent past and projected future in Afghanistan. All values shown are anomalies relative to the 1970-1999 mean. Black trend lines show the mean of observed data from 1960 to 2006. Brown curves show the median (solid line) and range (shading) of model simulations of recent climate across an ensemble of 15 models. Coloured lines from 2006 onwards show the median (solid line) and range (shading) of the ensemble projections of climate under three emissions scenarios. Coloured bars on the right-hand side of the projections summarise the range of mean 2090-2100 climates simulated by the 15 models for each emissions scenario. [Source: McSweeney et al., 2008]

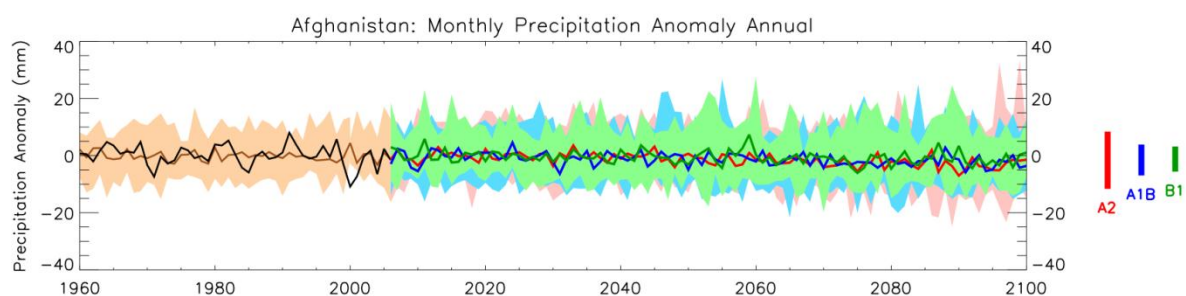


Figure 5: Trends in monthly precipitation for the recent past and projected future in Afghanistan. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 4 for details. [Source: McSweeney et al., 2008]

38. As a result of the predicted increase in drought occurrence, the large numbers of livestock that are currently grazed on what is regarded as ‘barren land’⁸⁰, will either die off or be relocated to higher wetter areas, with negative impacts on human welfare and biodiversity. People will likely be displaced from marginal areas as well, and potential drought-induced deaths from climate change amongst nomadic pastoralists such as the Kuchi have been estimated at over 10,000 people per year⁸¹. Whilst certain crop species may actually benefit from carbon enrichment and increased temperatures (e.g. wheat, which may experience an expansion of its growing season), it is likely that the increase in intensity and duration of both droughts and floods will significantly decrease the productivity of most species⁸².

39. The **water sector** will be heavily impacted by climate change. Changes in rainfall intensity and increased drought frequency and intensity will lead to reduced river flow

⁸⁰“Large areas of ‘barren land’ or ‘waste land’ are also used for grazing, particularly in winter.” UNEP & NEPA, 2008.

Afghanistan’s Environment 2008, Zurich, Switzerland: United Nations Environmental Programme. 37.3 % of the country is defined as barren and mountainous in the NCSA-NAPA.

⁸¹ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁸² GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

forcing Afghans to seek costly and less accessible alternative water sources. Increased demand on stressed and over-exploited underground water sources will lead to the drying up of essential wells and springs, further negatively affecting human health and livelihood. The drying of wells has already been observed around Kabul city, where the current rates of water extraction in the Kabul basin has already led to a severe shortage of water⁸³. In addition, increases in flooding and erosion will lead to increased silt load in rivers and reduced water quality.

40. The **health sector** will experience significant climate change impacts. Flooding and landslides associated with heavy rainfall will cause injuries. In addition, floods will reduce water quality leading to an increase in the incidence of water-borne diseases such as cholera, typhoid and diarrhoea. Increased temperatures will assist the spread of temperature-linked vector-borne diseases like malaria and leishmaniasis. Cases of malnutrition are likely to increase as a result of poor harvests resulting from lower rainfall amounts and increased incidences of droughts and floods. The provision of health care through local clinics is likely to become more difficult as large numbers of people are increasingly displaced and moved around by climate change linked disasters such as landslides, droughts and flooding.
41. Climate change may also have serious impacts on the **energy sector**. Afghanistan's high dependence on hydro-electric power means that changes in river flows are likely to lead to significant reductions in hydro-electric power generation through reduced river and dam volumes. Increased occurrences of floods will likely lead to a decline in hydro-electric power generation through increased incidence of flood damage to turbines and other power generating infrastructure. Increased erosion will also reduce hydro-electric power generation by increasing the siltation of rivers and dams, and consequently both reducing total flow, and increasing wear and tear on turbine infrastructure by the rivers' sediment load⁸⁴.
42. Additionally, the rate of regrowth of much of the indigenous vegetation is likely to be reduced by the reduction in available soil water as a result of increase drought incidence and changing water regimes⁸⁵. Given the population's heavy reliance on woody biomass for energy, this will increase the rate of degradation of natural ecosystems, damaging both the energy sector and the **forestry sector**.
43. **Conservation activities** are likely to be affected negatively by climate change. Increased temperatures, droughts and floods are likely to lead to widespread displacement of wildlife through large-scale range shifts (e.g. waterfowl have abandoned the reservoirs of Dasht-i-Nawar, Ab-i-Estada and Kol-i-Hashmat, which have recently dried up)⁸⁶. For sedentary species, increased temperatures, droughts and flooding will increase mortality and reduce species' ranges. In addition, climate change-linked declines in agricultural and livestock productivity will likely lead to increased human demands on natural ecosystems, accelerating the pace of degradation of previously pristine natural areas⁸⁷.
44. **Transport** infrastructure in Afghanistan is already limited, and climate change induced heavy rainfall is likely to increase the incidence of landslides and floods that

⁸³ Himmelsbach, T. 2008. Groundwater resources at risk: Kabul, Afghanistan. Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover.

⁸⁴ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA)

⁸⁵ Freitag H. 1971. Studies in the natural vegetation of Afghanistan. P.H. Davis (ed). Plant life of South-West Asia. Edinburgh: Royal Botanic Garden. p 89-106

⁸⁶ UNEP & NEPA, 2008. Afghanistan's Environment 2008, Zurich, Switzerland: United Nations Environmental Programme.

⁸⁷ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

damage roads and bridges. Estimated infrastructure damage costs of a single severe flooding event are estimated to be between US\$ 300 million and 400 million⁸⁸.

45. The impacts of climate change tend to disproportionately affect **women** and **children**. Women in Afghan society are almost completely dependent on the male members of their household, which means they have limited autonomy, decision-making capacity and access to economic assets. Men are generally more able to respond to climate change impacts by moving to look for employment or alternative income, but women are often tied to specific locations and highly dependent on climate-vulnerable resources⁸⁹. Reducing this dependence and empowering women is a broad-reaching challenge that extends far beyond climate change. Children are widely responsible for gathering firewood and raising small livestock, both of which could be negatively affected by climate change⁹⁰, requiring longer hours of gathering and herding. Furthermore, women and children typically bear the burden of water shortages, typically walking 2 – 5 km daily to fetch water in dry plains provinces such as Helmand and Kandahar⁹¹. Additional social impacts from climate change include the potential for conflict over decreasing ecological services and natural resources.

National climate change adaptation capacity

46. The extended period of conflict and political instability dating from the USSR's 1979 invasion has severely eroded Afghanistan's national skills base. The impacts on education are detailed in paragraphs 12-13. Alongside the severe lack of formal education, particularly at a tertiary level, the government structures have been highly fluid as a result of repeated civil war and foreign involvement. With the post-2001 democratic government, Afghanistan has been in the process of establishing laws, policies and strategies to guide the country. This process is made more challenging by the lack of experience and management capacity within the recently-formed (and still changing) government structures. In addition, the poor finances of the state, which has a very small tax base and no significant sources of income, limits the implementation of these strategies and policies.
47. Climate change adaptation requires a multi-sectoral approach to planning, and integration of adaptation priorities into many different policies. At present, this integration is challenging, due to the operation of different ministries within their separate silos. Some attempts to remedy this have been undertaken through projects such as the INC, which formed the National Climate Change Committee (NCCC). This body was identified during the National Capacity Needs Self-Assessment (NCSA)/NAPA process as necessary for coordination of national climate change priorities and policies. Nevertheless, at present there is no identified body or strategy for dealing with climate change adaptation. Long-term climate data are extremely limited (see paragraph 30), and the capacity for monitoring and responding to climate change within the Afghan Meteorological Authority (AMA) and Afghanistan National Disaster Management Authority (ANDMA) respectively is very low⁹². Furthermore, this lack of capacity is compounded by extremely limited access to necessary tools such as This means that at present Afghanistan does not have sufficient knowledge or capacity to monitor, plan for or respond to the impacts of climate change.

⁸⁸ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁸⁹ FAO, 2003. Gender and Sustainable Development in Drylands: an Analysis of Field Experiences

⁹⁰ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁹¹ Qureshi, A.S. and Akhtar, M. (2004) A survey of drought impacts and coping measures in Helmand and Kandahar provinces of Afghanistan.

⁹² Personal communication, IC. 29 June and 10 Dec 2012.

The problems to be addressed by the project

48. The principal problems to be addressed by the project are that: firstly climate change in Afghanistan will severely impact the water sector as well as key sectors that depend on regular water supply; and secondly rural communities and all levels of authority presently lack the climate change knowledge, technical capacity, management capacity and physical and financial resources to overcome and withstand the impacts of climate change.

2.2 Threats, root causes and barriers

49. The baseline context underpinning the climate change-induced problem (see paragraph 48) is described in paragraphs 7 – 29. Additionally, the climate change-induced causes and threats have been detailed in paragraphs 35 – 45. The principal non-climate change related threats are described below.

Non-climate change related threats

Unsustainable resource usage

50. Poor and intermittent water supply is the most consistent threat to livelihoods in Afghanistan. The current level of threat is explained earlier in this document (paragraphs 30 – 34). In addition to climate change, a significant factor influencing the availability of water is degradation of ecosystems. Decades of unsustainable resource use in Afghanistan, particularly through the harvesting of fodder for livestock and of woody plants for fuel, have resulted in a high level of degradation in much of the country. This is exacerbated by the population's high dependence on rain-fed agriculture, which results in additional demands on natural ecosystems for food provision during years of poor rainfall, further increasing rates of degradation. The constant degradation of ecosystems and reduction in vegetation cover has resulted in: i) increased soil erosion; ii) a reduction in the availability of food; and iii) significant downstream effects, including reduced water flow.

i) Threats causing erosion

51. The chain of causal events that link deforestation and degradation to erosion is detailed below:

- The cover of trees, grasses and shrubs is reduced by grazing or harvesting. As the biomass decreases, the current level of harvesting cannot be maintained. As a result, these processes become increasingly unsustainable over time, increasing the level of degradation. A negative cycle of degradation is consequently established.
- The intensity of the demand for wood in the country is evidenced by the illegal removal of many species, and the rapid disappearance of productive woodlands in the last twenty years (see paragraph 25). In some areas in the central highlands, the majority of harvestable woody vegetation has been removed for kilometres around settlements.
- The loss of vegetation cover exposes soils to raindrop impact.
- This results in clay dispersion and mineral crusting, which in turn leads to increased surface runoff and erosion. Crusting can also be exacerbated by compacting of exposed soils by the hooves of grazing animals.
- The soils retain less water from rainfall and snowmelt, reducing their capacity to act as a 'sponge'. This causes an increase in the flow of rivers in spring and early summer, but a concomitant reduction in flow in rivers during dry periods.

ii) Threats causing a reduction in food availability

52. The chain of causal events that link deforestation and degradation to a reduction in food supplies is detailed below:

- Degradation through harvesting and grazing results in desertification through the negative cycle described above.
- Agricultural productivity is reduced because degraded and eroded soils reduce the availability of water for agriculture. Less water infiltrates into topsoils, and it evaporates quicker as a result of exposure to wind and sun.
- Erosion-induced siltation in dams as well as reduced summer water quantities hampers the effectiveness of irrigation projects.
- As agricultural yields fall, communities become increasingly dependent on ecosystem-based food supplies such as wild fruit, nut and tuber species, placing increased pressure on these resources.

iii) Additional threats

53. The chain of causal events that link deforestation and degradation to reduced water availability and impaired human health is detailed below:
- Water supply from rivers for domestic, agricultural, industrial and power-generation becomes more variable, with the following effects:
 - increased flow in the wet season (spring and early summer) increases the risk of floods, with concomitant negative impacts as described in paragraph 34;
 - increased flow intensity reduces groundwater recharge, reducing the effectiveness of wells and other artesian water supplies; and
 - reduced flow in late summer as a result of poor infiltration rates increases the length and impact of dry seasons, increasing the likelihood of droughts.
 - Decreased water supply promotes the movement of agricultural activities into marsh and riverbank areas. This in turn reduces the capacity of riverine vegetation to slow down flood surges, resulting in an increase in the frequency and intensity of floods⁹³.
 - Silt from erosion reduces the quality of water in rivers, affecting human health.

Poverty

54. Afghanistan has a high prevalence of poverty (approximately 36%, see paragraph 7), and the majority of the population (~ 75%) resides in rural areas. In addition, the country has a large internally displaced population as a result of historical conflicts. The poor and marginalised are more vulnerable to climate change impacts because they have the least capacity to adapt to such impacts. The majority of the rural and poor population depend on agriculture, pastoralism and the exploitation of natural resources for their livelihoods. Droughts or flooding can seriously impair their supplies of food.

Dependence on rain-fed agriculture

55. As a result of the poor efficiency and minimal availability of infrastructure for irrigation in Afghanistan, the majority of agriculture in the country is rain-fed. This type of agriculture is disproportionately affected by water shortages associated with adverse weather conditions and drought. The lack of appropriate technologies and natural buffers to reduce these adverse effects means that rain-fed agriculture contributes to the vulnerability of rural communities to climate change impacts.

Preferred responses:

56. In the light of the above-mentioned climate change-induced problem and causes, the preferred responses (normative situation) for managing the likely consequences of climate change have been identified, as have the barriers that need to be overcome in order to achieve the normative situation. The preferred responses shown below may not be feasible given current limitations in the country. However, by identifying and highlighting barriers to implementation, the LDCF project hopes to facilitate Afghanistan's

⁹³ Bradshaw, C.J. A., Sodhi, N.S., Peh, K.S.H. and Brooks, B.W. 2007. Global evidence that deforestation amplifies flood risk and severity in the developing world. *Global Change Biology*, vol 13 no 11 pp 2379-95.

development of the necessary skills and frameworks that will assist the country achieve these preferred responses in the long-term.

Institutional capacity in Afghanistan is strengthened to facilitate effective adaptation planning and protection of rural communities, ecosystems and development against climate change.

57. The preferred solution would see institutional capacity in Afghanistan strengthened in order to facilitate effective adaptive management and adaptation planning. This would entail extensive capacity building and awareness raising activities with staff from relevant ministries and departments (see Section 2.6 for relevant stakeholders). In addition, it would require effective collaboration and information sharing between government departments to ensure that effective adaptation measures and plans could be identified.

Community and local capacity is strengthened to successfully respond to climate change.

58. The preferred solution would see awareness of the potential impacts of climate change being raised amongst rural communities and the general public, and the capacity of these communities developed to effectively respond and adapt to the impacts of climate change. Communities would be equipped with the appropriate infrastructure (irrigation infrastructure, drought resilient species, and agricultural protection measures), technologies and knowledge to reduce their vulnerability to the negative impacts of climate change.

Ecosystems are restored and sustainably managed to deliver the full range of ecosystem services they are capable of delivering in the face of climate variability and change.

59. The preferred solution would see elimination of unsustainable activities (over harvesting of watersheds and rangelands) in conjunction with an improvement in rural livelihoods, eliminating the need to place natural resources under unsustainable pressure. In addition, the preferred solution would see degraded ecosystems undergoing, this through a reduction in harvest pressures and a process of planting of appropriate species. Coupled with simple management protocols, this would ensure that the ecosystems are able to effectively regulate water flow from upper and middle catchments and decrease soil loss, reducing the effects of climate change impacts on all communities in the watershed.

60. The preferred solution would also see more awareness-raising activities regarding the ecological importance of natural ecosystems undertaken within the communities.

Barriers to implementation of preferred solutions

Limited awareness of climate change and adaptation

61. At present there have been very few awareness-raising activities undertaken in Afghanistan with respect to the impacts of climate change⁹⁴. The low level of education in Afghanistan, language barriers, complexity of information and a limited integration of climate change into the formal education curriculum also contributes to low levels of awareness about the issue. Community-developed coping strategies for dealing with current climatic conditions are proving insufficient, and communities have limited knowledge and capacity to deal with future climate change impacts.

Lack of climate-related data including early warning systems

62. The limited climate-related data available in Afghanistan (as a result of the combination of political upheaval and limited gathering capacity) limits the effective assessment of climate change impacts on a local level, including downscaled projections.

⁹⁴ GIROA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

Current estimates of potential climate changes are derived from global climate change models (GCMs) which lack the resolution to accurately portray climate change on a local scale⁹⁵. The limited knowledge regarding climate change in Afghanistan hampers the assessment of climate change risks within the country.

63. The AMA has limited data gathering and reporting capacity, and at present does not have electronic records or a database. The majority of the daily weather records were lost during the period of Taliban governance, and current weather records prior to 2001 are limited to summary data for 26 weather stations over the period 1963 to 1977. Current efforts to gather climate information are fragmented, with separate agencies such as the United States Geological Survey (USGS)'s Agro-Meteorology Program (AgroMet) in the Ministry of Agriculture, Irrigation and Livestock (MAIL), the FAO's Emergency Irrigation Rehabilitation Project (EIRP), the International Security Assistance Force (ISAF) and the Ministry of Energy and Water (MEW) all gathering meteorological data in parallel⁹⁶ to the AMA. A structure to facilitate sharing of data is needed. Weather forecasts from the AMA are provided through expert knowledge rather than weather model ensembles⁹⁷, and although other entities such as the Famine Early Warning System Network (FEWSNET) provide weekly forecasts, using data from the US National Oceanic and Atmospheric Administration (NOAA), reliable estimates of extreme weather events are not yet broadly available.

64. ANDMA is the government agency mandated with providing and coordinating disaster responses and early warning systems. At present, there is no national early warning system for climate change and the limited availability of climate and weather information prevents ANDMA from developing such early warning systems.

Poor policy enforcement

65. At a national and provincial level, there is a general lack of enforcement of environmental law. Afghanistan's environment law was enacted in 2005, and all policies and strategies described in Sections 2.5 relevant to this project were only adopted within the last seven years (2004 – 2011). These legal and policy instruments are not effectively enforced as a result of limited knowledge and/or capacity of the enforcing authorities. For example, the hunting ban declared by President Karzai in 2004 is frequently broken by communities that are desperately short of food⁹⁸, and reduction of national forest is largely as a result of illegal logging⁹⁹.

Lack of planning capacity

66. The current policy framework for Afghanistan's economic development lacks the overall mechanism and tools for its climate proofing, particularly regarding the integration of climate change risks into integrated water resource management (IWRM), land use planning and management, drought preparedness and risk reduction plans¹⁰⁰. Overall challenges for the government in the management of climate risks include lack of tools and information for climate-proofing development, which, if not addressed, will increase the vulnerability of the country. In addition, such institutions generally lack sufficient financial resources to properly undertake planning activities¹⁰¹.

⁹⁵ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

⁹⁶ IC. Personal communication with Mohammed Faheem Zaheer. AgroMet Program. [29 June 2011].

⁹⁷ IC. Personal communication with Dr Noori, Director of the AMA [28 June 2011].

⁹⁸ IC. Personal communication with head of National Directorate of Security in Bamyan [25 June 2011].

⁹⁹ UNEP, 2008. Biodiversity profile of Afghanistan. An output of the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) for Afghanistan. Kabul, Afghanistan.

¹⁰⁰ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

¹⁰¹ GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

67. Even if adequate financial and technological resources were in place, human resource capacity to utilise these resources on adaptation in Afghanistan as a least developed country is a pressing concern. In general, institutions in charge of environmental management suffer from chronic insufficiency of technical and managerial skills as a result of the country's history of limited education. Rapid building of institutional capacity is therefore a prerequisite for any successful adaptation effort.

Lack of financial resources to cope with climate stress

68. As an LDC, Afghanistan lacks the financial base to adequately address the infrastructural and planning challenges imposed by a changing climate. Although the economy has been experiencing rapid growth, estimated at 8.5 – 9.0% in 2009/10, and about 8.2% in 2010/11, the size of the economy is still very small. The government revenues are ~US\$ 1.61 billion (9.8% of the GDP). However, public spending is ~ US\$ 10.6 billion, of which only US\$ 4.6 billion is under control of the government's formal public finance mechanism systems. Furthermore, 74% of the operating budget goes towards public service wages and salaries, the majority (60%) of which is used in the security sector¹⁰².

69. Afghanistan thus lacks the financial resources to undertake significant revisions of strategy and to provide training and capacity-building within government sectors without donor support. Furthermore, it is unable to allocate sufficient financial resources to deal with current climate variability, much less ensure resilience under conditions of climate change. It is therefore essential that low-cost, high-impact adaptation measures be introduced and mainstreamed throughout the public sector.

70. The project will contribute to overcoming these barriers by:

- **Improving national institutional capacity** (to be addressed through Outcome 1) – NEPA, MAIL, the Ministry of Rural Reconstruction and Development (MRRD) and other relevant line ministries and departments will be strengthened through practical experience gained through the adaptation measures undertaken by the project within the identified project intervention sites (Outcome 3). The project will additionally improve institutional capacity to undertake effective adaptation planning beyond the project lifetime (Outcomes 1 and 2). At present, line ministries' integration of priorities identified through the NAPA process into sectoral strategies has been limited. Capacity will be further built to enable NEPA to access available international funding opportunities to address the financial resource shortage for further expansion of climate change adaptation interventions.
- **Improving local institutional capacity** (to be addressed through Outcomes 1 and 2) – Afghanistan is pursuing a policy of developing decentralised government structures such as provincial and district administrations. At present, the majority of these structures are severely limited in capacity. The LDCF project will engage with provincial and district administration through the project implementation, and will build capacity within these structures through training and “learning by doing” approaches to project activities. In addition, the LDCF project will build capacity in provincial and community-based Afghan non-governmental organisations (NGOs) to facilitate the development of a strong local civil society.
- **Improving community capacity** (to be addressed through Outcome 3) – in order to ensure that the LDCF project remains sustainable after the project period, and to ensure an effective “bottom-up” approach to adaptation planning, the project will

¹⁰² World Bank. 2011. Afghanistan Economic Update (May 2011). Available from: <http://siteresources.worldbank.org/AFGHANISTANEXTN/Resources/305984-1297184305854/AfghanistanEconomicUpdateJune2011.pdf>.

involve Community Development Councils (CDCs), *shuras*¹⁰³ and other community organisations. In addition, the project will conduct awareness-raising activities in vulnerable communities to improve their knowledge on climate change and adaptation. The LDCF project will promote community-based natural resource management, improved water management and low-water usage agriculture to promote the climate resilience of communities. **Improving inter-ministerial coordination** (to be addressed through Outcome 1) – Although the inter-ministerial National Environmental Advisory Council (NEAC) was created to promote coordination of environmental matters between all relevant national ministries, there is still limited coordination of environmental policy and no integration of climate change adaptation into national strategies. Although officially mandated, the NEAC has not yet arranged a regular meeting cycle to ensure the exchange of appropriate information. The NCCC is another inter-ministerial committee, which was created during the process of developing the country’s Initial National Communication (INC) to the UNFCCC. In addition to oversight of the INC, the NCCC is mandated with ensuring that climate change adaptation is mainstreamed within government processes. The NCSA/NAPA process identified the lack of an NCCC as a significant problem in terms of coordination to meet national obligations under the UNFCCC. At present, the NCCC does not meet regularly, and is still lacking in capacity to carry out its mandate as a result of a very low understanding of the effects and implications of climate change. The LDCF project will improve inter-ministerial communication by providing additional support for the NCCC, and establishing a data management network to ensure duplication of effort is avoided and appropriate adaptation approaches are integrated across ministries. All relevant agencies will be involved in training and capacity-building exercises.

- **Improving adaptation knowledge and awareness** (to be addressed through Outcomes 1, 3 and 4) – The current level of knowledge of climate change, adaptation and the effects of ecosystem management within Afghanistan is very low. The project will address the lack of knowledge by facilitating information gathering and exchange structures. Awareness within all levels of administration will be addressed by the development of best practice guidelines for ecosystem management adaptation interventions and policies that integrate climate change adaptation. Public awareness of climate change and adaptation will be promoted through integration of adaptation into national curricula as well as publicity campaigns in national and local media.
- **Providing SOPs and facilitating the establishment of a climate Early Warning System (EWS)** (to be addressed in Outcome 1) – As a result of the severe lack of capacity within the relevant national institutions, it is not anticipated that the project will be able to establish a fully-functioning EWS. However, the LDCF project will interact with partner projects to develop standard operating procedures (SOPs) and a recommended structure for a national EWS for climate-related threats. In addition, the project will establish a trial EWS in the identified priority provinces in order to test and refine these recommended structures and procedures. This will be done in addition to providing training to AMA staff on predicting climate change-induced disasters in order to provide early warning information to ANDMA. These activities, combined with the actions of baseline projects and identified partners, will result in the long-term establishment of a functioning national EWS, but it is anticipated that this will only be realised after project completion.

Project activities

71. The LDCF project will operate at a national level within NEPA and identified partner government agencies (AMA, ANDMA, MAIL and MRRD). The national-level interactions

¹⁰³ A *shura* is a traditional local council. Historically these have been male-dominated structures, but recent attempts to ensure that women’s voices are heard within the *shura* structures have met with moderate success in some areas.

are designed to enhance Afghanistan's knowledge and understanding of the potential impacts of climate change (Output 1), and to improve the ability of the country to plan for these effects (Output 2). The LDCF project will also undertake local-level interventions in four districts identified as priorities by national partners. These local-level interventions will be designed not only to increase the resilience of local communities and the capacities of local officials to plan for climate change, but also to evaluate different approaches to promoting climate change resilience. The interventions themselves will be coordinated at a provincial level, but will address different components of climate vulnerability as identified in the NAPA.

72. An evaluation of the cost efficiency of the interventions and of their relative value will be undertaken in years 1 and 4 of the project implementation. This will allow a realistic assessment of suitable methodologies to enhance national resilience to climate change to be developed. Cost-effective ecosystem management based adaptation methods from the interventions, in conjunction with lessons learned through interaction with other regional and international adaptation programmes, will be integrated into training tools to promote upscaling of the interventions.
73. The LDCF project will address the barriers identified above by implementing four separate components, namely:

Component 1: Climate change risk assessment, monitoring and forecasting, and information.

74. This component addresses needs identified at a national level. Afghanistan's ability to plan for the effects of climate change is hampered by poor data availability, poor integration of the data that is available, and no means of interpreting the data or providing climate change early warning systems. These roles should largely be filled by AMA and ANDMA. In addition, the current lack of knowledge of climate change within national institutions means that climate change adaptation will not be integrated into national development planning without some form of intervention. The LDCF project will enhance the capacity of Afghan institutions to assess, monitor, predict and interpret climate change related risks in Afghanistan by building on current baseline projects through: i) enhancing the capacity to assess, monitor, predict and interpret climate change-related risks to Afghanistan; ii) establishing a functional EWS for the systematic collection, analysis and distribution of climate change-related risks at the national and community levels; and iii) providing technical and policy briefs on the risks posed by climate change.
75. The predominant activities under this component will operate at a national level. However, the climate change EWS will be tested by establishing a trial informational network within the priority provinces. This will allow the process of climate risk information exchange to be refined, as well as facilitating the penetration of the EWS to local and community levels within the project sites. Overall, this component will therefore address the identified barriers *Lack of planning capacity* and *Lack of climate-related data including early warning systems*.

Component 2: Climate change adaptation planning and response strategies.

76. This component will also operate primarily at the national institutional level. Through the actions of this component, the coordination of climate change planning and responses will be strengthened within national institutions, promoting the integration of climate change adaptation response into national policies, plans and programmes. The specific outputs under this component include: i) the identification and tailoring of tools and methodologies for identification, evaluation and mainstreaming of climate change adaptation measures into the water sector and other relevant sectors; ii) support for the functioning of the NCCC to ensure inter-ministerial coordination of climate change

adaptation efforts; iii) integration of climate change risk reduction and adaptation measures into national policies; and iv) building the capacities of national institutions to implement relevant climate change adaptation measures.

77. The first output will provide tools for analysing the effectiveness of the on-the-ground interventions implemented in Component 3, and in turn, the results of the interventions will be used to inform the national mainstreaming processes. This learning-by-doing process will help to promote national research and planning capacities. The additional outputs will build the capacity for climate change adaptation integration into multi-sectoral national development and coordination strategies. It will also enhance the ability of the national government to access funding for multilateral environmental agreements (MEAs) and to fulfil their obligations under these agreements. Consequently, this component will address the identified barriers *Lack of planning capacity*, and *Poor policy enforcement*. It is hoped that the integration of a climate change strategy into national policies will also ensure allocation of government funds towards large-scale national climate change adaptation interventions, addressing *Lack of financial resources*.

Component 3: Practices for water resource and watershed management piloted and tested in selected project sites.

78. This component will largely be undertaken at a local level through a learning-by-doing process. It will focus on reducing climate change vulnerability in the selected project sites through use of appropriate technologies for improved water use efficiency and increased environmental resilience. This approach is based on an ecosystems approach to climate change adaptation, facilitating the establishment of functional and resilient ecosystems that provide multiple benefits and enhance livelihoods under conditions of climate change. Specific interventions have been identified in the four priority provinces that will investigate different approaches for rangeland areas, mountains, wetlands, and peri-urban subsistence farmland. The variety of approaches and implementation sites will allow the project to establish a broad scientific basis for appropriate adaptation activities throughout Afghanistan. Climate resilience of identified vulnerable communities will be increased through action in four main focal areas: i) piloting cost-efficient micro irrigation and improvement of current irrigation techniques; ii) piloting drought resilient dryland agricultural techniques, iii) piloting restoration of riverine areas and peri-urban degraded land; and iv) training communities in integrated water resource management with a focus on ecosystem management based adaptation.

79. In addition to increasing the resilience of the targeted communities, knowledge generated from the outputs of this component will benefit the country as a whole through integration into national strategies and policies through the actions in Components 2 and 4. Furthermore, the dryland agricultural activities undertaken in Component 3.2 will benefit from the establishment of the pilot EWS specified in Component 1.

Component 4: Adaptive learning and dissemination of lessons learned and best practices.

80. This component will be undertaken at national, provincial and local levels, and aims to increase the knowledge of good practices for increasing national resilience to climate change-related risks. The specific outcomes under this component are: i) to capture and disseminate project lessons learned using a project-specific website, the Global Adaptation Network (GAN) and the Asia Pacific Adaptation Network (APAN); ii) to share and exchange knowledge with other countries in the region that face similar climate change-induced hazards; iii) to incorporate project knowledge into national flood- and drought-prevention and public service training programmes; iv) to raise awareness of climate change risks and appropriate adaptation measures for local communities and key

national policy makers; and v) to mobilise resources for the replication of successful project interventions elsewhere in Afghanistan.

81. This component is essential for tying together the national and local activities by raising awareness and incorporating lessons learned from Component 3 and by integrating knowledge into policies in Component 2. The Component 4 activities will promote awareness of climate change adaptation issues in both government and the general public. In addition, the interaction with regional countries and exchange of knowledge and lessons learned will further enhance Afghanistan's understanding of climate change research knowledge management, thereby enhancing the outcomes of Component 1. This Component therefore addresses the identified barrier *Limited awareness of climate change and adaptation* and will assist with *Limited financial capacity to cope with climate stress* through the mobilisation of resources.
82. Full details of the project activities are provided in Section 3.2.

2.3 Demonstration sites

83. Local community interventions will be undertaken in four provinces of Afghanistan: Bamyan, Balkh, Badakhshan and Daykundi. The selection process for these sites is detailed below (see site selection criteria, paragraph 84). Bamyan and Daykundi are situated in the central highlands, and include both the Hindu Kush and Koh-e-Baba mountains. These mountains are the watershed for most of the country, and consequently the restoration and establishment of resilient ecosystems within the region will have wide-ranging impacts. In addition, poverty levels in both provinces are very high^{104,105}, and the low agricultural productivity of the land means that the population is highly vulnerable to climate change impacts, including both drought and flash floods resulting from changing rainfall patterns.
84. Balkh is situated in the north of the country, and has a large population and high agricultural productivity as a result of the combination of fertile soils and many rivers in the province. However, the high dependence on river-fed agriculture is likely to become a liability in the face of frequent droughts and a predicted decrease in river flow. The high population density and vulnerability to the impacts of climate change make this an appropriate pilot area for examining the effects of climate change adaptation activities in dryland areas of Afghanistan. Balkh province is also climatically similar to much of the low-lying areas in the south and west of the country. Since these areas are not currently accessible as a result of security risks, it is hoped that techniques and lessons learned in Balkh can be readily applied to promote adaptation in other regions of the country should the security situation improve.
85. Badakhshan province falls within the alpine region in the north east of the country. The province has a high level of poverty, and although the furthest east portion of the province (the Wakan corridor) is home to some of the most intact alpine ecosystems in the country, the area around the capital of Fayzabad is highly degraded. Historically, Badakhshan has been largely dependent on opium for income, and the recent national crackdown of opium poppy harvesting has left many communities without the means to generate an income. This has rendered them and their subsistence agriculture activities extremely vulnerable to the effects of a changing climate.

¹⁰⁴ UNAMA. 2011. Daykundi Provincial Profile April 2011.

¹⁰⁵ MRRD. 2006. Provincial profile for Bamyan. Regional Rural Economic Regeneration assessment and Strategies (RRERS) Study. Kabul, Afghanistan.

2.3.1 Site selection criteria

86. A shortlist of provinces was selected during the inception workshop held in Kabul on 13 April 2011. This meeting was attended by stakeholders from many provinces and from all relevant ministries (see Appendix 7). Site selection criteria were decided upon by the stakeholders, and included poverty, agricultural dependence, water shortage, population pressure, incidence of drought and climate hazards, public awareness and education, and human health. Final province selection was undertaken by NEPA officials facilitated by the UNEP country team, and included additional essential criteria such as security risks and feasibility of operations within the provinces. Proposed provinces and districts for project execution are shown in Figure 6 below.

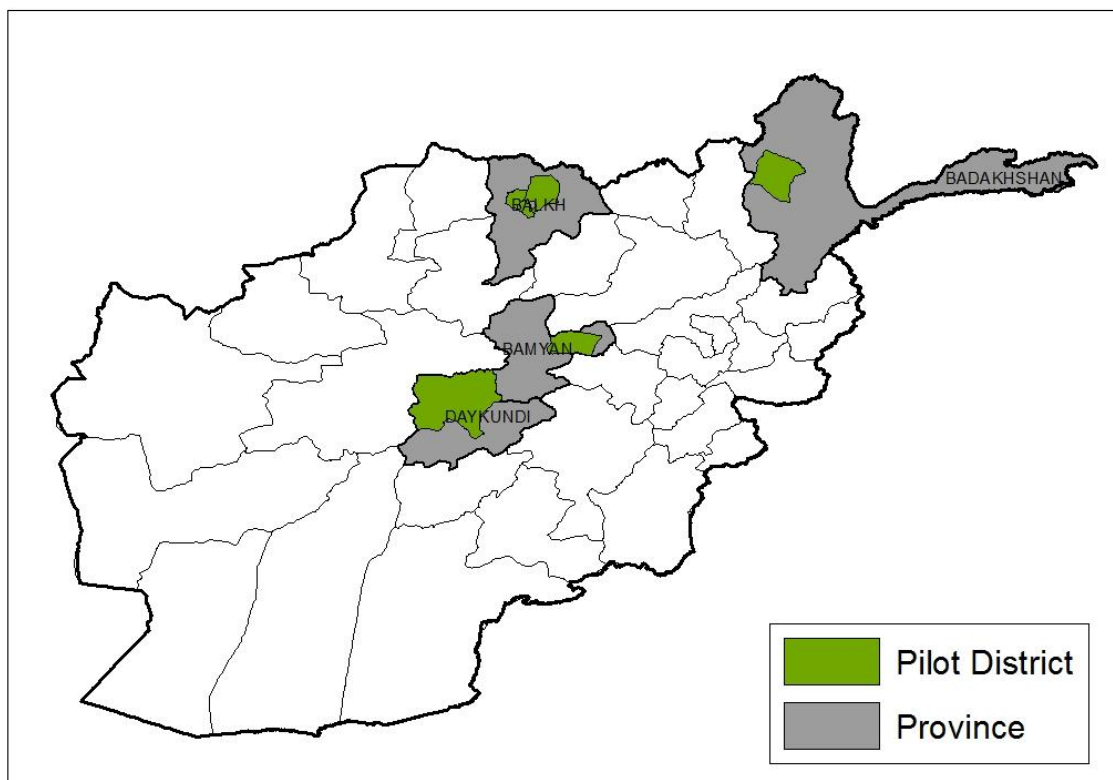


Figure 6: Identified priority provinces and the location of intervention districts within the provinces. The south and east of the country was largely excluded due to security concerns.

87. Security for the implementing agency and potential partner organisations within the areas was an essential criterion that was integrated into the initial site selection shortlist, and four provinces were highlighted for project activities. Selection of districts within these provinces was carried out by national consultants in consultation with provincial NEPA staff and government officials. This process was facilitated where necessary by the UNEP country team. Priority was given to identifying sites at which the communities were identified as having a particularly high vulnerability to the effects of climate change. All areas considered had high levels of poverty, as assessed by local officials, and levels of food insecurity ranging from 51% to 65% of the total populations¹⁰⁶. An example of the selection criteria in a spreadsheet is shown in Appendix 8.

88. Subsequent consultation of officials and community leaders within these districts was undertaken by the national consultants (NCs) in order to establish priority interventions

¹⁰⁶ National Risk and Vulnerability Assessment 2007/8.

and project sites. This process is challenging within the Afghan context as a result of travel and time limitations imposed by the security situation, and in some cases, full consultation was not possible. In these cases, consultation with relevant provincial authorities, combined with expert analysis from the implementing agency, the executing agency and relevant NGO partners working in the area was used to determine the best interventions for the areas.

89. At present, specific sites have not been selected within Balkh province, due to logistical issues involved in travel for the UNEP and contracted staff¹⁰⁷. However, district selection was carried out through consultation with provincial authorities. Relevant project activities for the area were identified through consultation with the International Center for Agricultural Research in the Dry Areas (ICARDA), which has been identified as a potential implementing partner for NEPA's operations in the area.

2.4 Global significance of the project

90. The LDCF project encompasses several different ecosystems within Afghanistan (see Section 2.3), including the dry central mountain region, the alpine slopes in the eastern highlands, and the dry plains in the north of the country.

91. The central highlands of the Koh-e-Baba and Hindu Kush are the water tower for much of central Asia. Rivers originating in these highlands provide essential water not only to Afghanistan, but also to Iran, Pakistan, Uzbekistan and Tajikistan. Given the shortage of water in many of these countries, and the internationally-recognised potential for conflict implicit in such limited shared resources^{108,109}, the maintenance of these areas in the face of climate change is of international significance. Furthermore, in addition to ensuring longer-term water flow from the area, the proposed watershed management practices will also promote the sequestration of carbon in planted tree and shrub species. The project will therefore play a role in the mitigation of climate change globally.

92. In addition, by promoting community conservation as a component of the watershed management practices within the project, it is hoped that the protection of species of global significance such as the snow leopard will be enhanced. Although Afghanistan is not a global biodiversity "hotspot"¹¹⁰, a large proportion of its natural biodiversity is at risk as a result of over-exploitation. Most ecosystems in Afghanistan are fragile. This is because of the country's aridity as well as large-scale habitat transformation through agriculture, logging and hunting. The proposed Shah Foladi reserve in the Bamyan Highlands is home to a number of endangered species, and the effectiveness of conservation in this area would be enhanced by the LDCF project's community-based watershed management activities in areas bordering this conservation area. The highlands in Badakhshan are home to the Marco Polo sheep, the markhor, the ibex and the snow leopard. The actions of the LDCF project in this district will enhance the conservation of these species. Furthermore, by ensuring constant seasonal water flows into the river basins leading from highland areas, the project will promote the long-term conservation of many plant and animal species in downstream areas that would otherwise suffer from climate change effects.

¹⁰⁷ Travel to project districts in Afghanistan must be carried out by helicopter due to poor security on the roads and the high incidence of improvised explosive device (IED) attacks. An attack on UN staff in Mazar-e-Sharif on 1 April 2011 resulted in the death of three UN staff members and four Nepalese guards, and prompted the removal of the remaining staff to Kabul. Travel to the area has resumed, and an initial meeting has been conducted with provincial officials, but no field visit has been feasible to date. It is anticipated that this will be undertaken during the inception phase of the programme.

¹⁰⁸ Karaev, Z. (2005) Water Diplomacy in Central Asia. *The Middle East Review of International Affairs*, 9 (1). Available from: <<http://meria.idc.ac.il/journal/2005/issue1/jv9no1a5.html>>.

¹⁰⁹ Votrin, V. 2003. Transboundary water Disputes in Central Asia: Using Indicators of Water Conflict in Identifying Water Conflict Potential.

¹¹⁰ Groombridge, B., and Jenkins, M. (eds.) 1994. Biodiversity Data Sourcebook. WCMC, UNEP, IUCN, WWF.

2.5 Institutional, sectoral and policy context

93. Afghanistan is a signatory to several MEAs and international conventions; however, at present the success of implementation of each of these varies considerably. It is a signatory to CITES and the Rio Treaties (UNCCD, UNCBD and UNFCCC), but has not yet ratified the Kyoto Protocol. The lead coordination agencies for these conventions within Afghanistan are the MAIL and NEPA. This sharing of responsibility is a result of historical factors, and the relative lack of capacity in NEPA when it was first formed. NEPA is responsible for overarching policy and regulatory aspects of these conventions, whereas much of the field-level management is undertaken by MAIL.
94. Afghanistan signed the United Nations Framework Convention on Climate Change 12 June 1992, and ratified it on 19 Sep 2002. The process of preparing the INC is complete, and is scheduled to be submitted by June 2012. Although there is not a widespread understanding within the GIRoA of the effects of climate change, there is nevertheless considerable political will to remedy this situation. NEPA is the lead coordinating agency in this respect, and it has been identified as the focal point for both GEF activities and climate change issues. In order to draft the INC, five different thematic National Study Teams were established to investigate specific areas. In addition, the NCCC was established to support the INC process. The NCCC is a policy-making and strategic body comprising members from nine line ministries, NEPA, Kabul University, the Afghanistan National Standards Authority and the Afghanistan Investment Support Agency. In addition to oversight of the INC process, it is mandated with ensuring that climate change policy is developed and included in sectoral policies and other relevant departmental plans.
95. At the national level, the government agencies with primary responsibilities related to climate change, natural resources, disaster management and development include:
- The **National Environmental Protection Authority (NEPA)** which was established in 2005. This is the same year that Afghanistan's first Environmental Law was drafted and signed by the president prior to ratification by the National Assembly and promulgation in 2007. NEPA is responsible for both policy-making and regulation of environmental matters within Afghanistan. Officially, almost all issues relating to the environment fall within the mandate of this agency, including environmental education, assessment and the implementation of international and multilateral environmental agreements. It is the identified national focal point for climate change-related issues and for the GEF, and is the Executing Agency for the LDCF project.
 - The **Ministry of Energy and Water (MEW)** is responsible for the development and management of Afghanistan's ambitious power strategy. Recent advances in power generation are exceeded by rate of increase of power imports, and the ministry is therefore focussing strongly on increasing capacity. In addition, MEW is responsible for managing the national water policy, and is therefore a key partner for the project in this regard.
 - The **Ministry of Agriculture, Irrigation and Livestock (MAIL)** is responsible for the formulation of agricultural management and land husbandry plans, as well as for implementation of the Agricultural Master Plan. It is the key ministry in charge of water resource management, although this mandate is shared with MEW, and to some extent NEPA. The specific focus of MAIL's water mandate is with respect to the development and management of water for irrigation and agriculture. The ministry is a key partner with many of the international agencies that are involved in rehabilitating much of Afghanistan's irrigation infrastructure in the post-conflict environment. It is also currently investigating dry-land farming techniques and better ways to grow traditional crops in light of Afghanistan's regular droughts. Finally, as the Ministry from which NEPA was created, it shares much of the mandate for

implementation of environmental policies in locations in which NEPA is not currently active.

- The **Ministry of Rural Rehabilitation and Development (MRRD)** is responsible for much of the rural development work that is currently being undertaken in Afghanistan. The mandate of the ministry is to empower rural communities through the establishment of sustainable rural livelihood strategies and the provision of suitable minimum infrastructure. The MRRD is very active in all the project intervention sites through the NSP and is implementing additional activities in some areas through the National Area-Based Development Programme (NADBP).
- The **Afghanistan National Disaster Management Authority (ANDMA)** which was formed recently, and is responsible for drawing up and administering Afghanistan's national and local disaster management plans. At present, the majority of these plans are still in the formative stage as a result of the relatively recent establishment of the authority and its lack of capacity.
- The **Independent Directorate of Local Governance (IDLG)** is responsible for the development of local government in Afghanistan, and in particular with the reform and facilitation of sub-national governance policy. The particular focus of the IDLG is on the establishment of functioning democratic administrative structures.
- The **Afghan Meteorological Authority (AMA)** is a component of the Ministry of Transport due to the relevance of meteorological conditions to air travel. However, the broader mandate of the agency is to collect weather data, interpret it and to provide weather reports and predictions for the country. This should include the provision of seasonal forecasts to feed into national planning in terms of agriculture and disaster management. At present, there is limited capacity to fulfil this role.

Sectoral policies and strategies

96. The Supreme Council for Water Affairs Management (SCWAM) was created in 2005 and is composed of representatives from all sectors related to water use and management, including the following:

- Minister of Agriculture, Irrigation and Livestock;
- Minister of Energy and Water;
- Minister of Urban Development;
- Minister of Rural Reconstruction and Development;
- Minister of Health;
- Ministry of Mines and Industries;
- Mayor of Kabul; and
- Minister of the Economy.

97. The **Strategic Policy Framework for the Water Sector** was approved by SCWAM in 2006. It points out laws, regulations and procedures for guiding the sector:

- Revised Water Law;
- Water Resources Regulations, including a Water Resource Act, for both the surface and ground water resources;
- Irrigation Regulations (small and medium community-based, and medium and large scale public irrigation facilities);
- Charter and Internal Regulations for Water User Associations;
- National Water Supply and Sanitation Policy; and
- Hydropower Development Policy.

98. The GIRoA plans to form a National Water Agency or Water Secretariat that would assume responsibility for planning and managing national water use and become a storehouse for data relating to water management. The proposed Secretariat would report to the Vice President and SCWAM and would serve to link ministries and water-related sectors in formulating water policy and strategy. Once this body has been formed,

the LDCF project will interact with it in order to facilitate the mainstreaming of IWRM and climate resilience activities within the agency.

99. Afghanistan has a draft **trans-boundary water policy** that promotes cooperation and understanding in the management and use of internationally shared water resources. The policy advocates that the management and use of trans-boundary water resources be regulated through government regulations and international agreement. It is understood that water issues are likely to be contentious as the populations of Afghanistan and neighbouring countries grow, particularly in light of the fact that Afghanistan is a net water exporter and the source of much of the region's water (see paragraph 21). It therefore lays out strategies and conditions for the signing of international water rights agreements and the relevant responsibilities of neighbouring states. However, except for an agreement on the Helmand River, no treaties currently exist between Afghanistan and its neighbours.
100. The Afghan **Energy Sector Strategy** recognises the potential of hydro-electric power generation in meeting the country's energy needs. It therefore endorses the prioritisation of hydro-electric power generation over other energy sources. The strategy, however, realises that, in the interim, renewable energy offers the greatest opportunity for meeting the energy needs of the vast majority of Afghans. The majority of Afghan families presently cannot afford or do not have access to electricity and rather meet their energy needs through burning fuel wood, crop residues, and other biomass.
101. The **Policy and Strategy for the Forestry and Range Management Subsectors** is aimed at ensuring that Afghanistan's forest and rangeland resources are used and managed in a sustainable manner. The policy advocates for the institution of a forest and rangeland use ethos that judiciously balances the needs for agricultural maximization and environmental protection. The policy outlines a number of strategies that the Afghan government and its subsector partners can adopt to ensure a balance between agricultural development and environmental sustainability.

Cross-sectoral Policies

102. Several cross-sectoral strategies and plans have been developed that are pertinent to this project, and are described below.
103. The **Afghanistan National Development Strategy (ANDS)** is the guiding strategy document for national development. Although the current document details the objectives for the period 2008 – 2013, it encompasses some long-reaching goals that may take decades to realise. Consequently, it can be seen as providing the guiding vision for the long-term development of the country. The strategy focuses on three "pillars": i) Security; ii) Governance, Rule of Law and Human Rights; and iii) Economic and Social Development. Of particular importance to the LDCF project are those elements of ANDS that refer to economic and social development. Sustainable livelihoods are a top priority goal in the ANDS, and the project is designed to enhance livelihoods under conditions of climate change. Under ANDS, provinces are tasked with developing provincial development plans (PDPs) and district development plans. The specific interventions in the project have been designed to ensure alignment with these local plans through consultations within each of the target districts. Natural resource management was recognized as a key country priority in the implementation of ANDS. Section V of ANDS addresses water availability and efficiency, which remains an issue for Afghanistan. The LDCF project will specifically address eight of the 17 programmes included within the plan: i) increase water availability and use efficiency; ii) improved water allocation; iii) rehabilitate irrigation infrastructure and water storage facilities; iv) establish and strengthen institutions; v) build capacities, vi) empower communities; vii) improve systems of coordination; and viii) establish emergency measures. The LDCF

project is designed to provide interventions and knowledge to enhance the resilience of agriculture and associated activities under conditions of climate change. Finally,

104. The **National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Plan of Action (NAPA)** is a joint report that was published in 2009. It is a cross-cutting document that details the capacity constraints, opportunities and targets to address global environmental issues and enhance Afghanistan's capacity to meet its obligations under the Rio Conventions (UNCBD, UNCCD and UNFCCC). As such, this is the guiding document for adaptation within the country, and therefore particularly relevant to the LDCF project. The project interventions are designed with the goals of the NAPA in mind, particularly with regard to the priority NAPA projects of improved water management and use efficiency, and community-based watershed management.
105. The **Strategic National Action Plan for Disaster Risk Reduction (SNAP)** was published in 2011. This plan represents a bottom-up approach to developing disaster risk reduction strategies to ensure that Afghanistan is capable of planning for and responding to natural disasters. The baseline capacity for Disaster Risk Reduction (DRR) within Afghanistan is very limited, and several projects have been undertaken to enhance the capacity of ANDMA. The SNAP provides a framework for the development of national disaster risk reduction structures over the period 2011 to 2015, and seeks to utilise the convergence of DRR and climate change adaptation to promote capacity within ANDMA and to ensure consistency in national plans and programs. It calls for the establishment of a national DRR platform chaired by ANDMA, and the LDCF project will build specifically upon strategic objectives 3 (*"to strengthen the early warning system that is based on sound vulnerability and capacity assessments"*) and 5 (*"to strengthen community resilience using means to reduce the underlying factors of risk"*).
106. The LDCF project will contribute to important aspects of all the above mentioned policies and strategies by improving ecosystem climate resilience, enhancing dryland agricultural production despite changes in the water regime, and strengthening national capacity to plan for and overcome the negative impacts of climate change in the country.

Legislative Framework

107. The legal framework for environmental management issues in Afghanistan has not yet been completely formalised. This is largely a result of the long period of insecurity experienced by Afghanistan, in conjunction with a number of shifts in government. Since 2001, much work has been done on the establishment of laws, and drafts for many laws in this field have been drawn up. Nevertheless, once the legislative framework has been finalised, it is likely that there will be an establishment period during which enforcement of the legislation is limited as a result of capacity shortfalls in the relevant agencies.
108. The **Environment Law (2007)** was the first law passed in the natural resources sector. It creates regional and national institutional and procedural frameworks for dealing with matters related to environmental rehabilitation and natural resource conservation and use in Afghanistan. In particular, the law provides detailed guidelines for the conservation and management of Afghanistan's water resources (Articles 34-35), biodiversity (Articles 36 & 37 and 46-63) and protected (Articles 38-43) and unprotected (Articles 44 & 45) areas. The law also has provisions for the dissemination, extension and promotion of environmental information through education initiatives, training and research (Articles 64-66). It also provides a list of mandatory ethical and management principles that should be used to guide all decision-making and actions linked to natural resource use and conservation in the country (Article 5). Under the provisions of the Environment Law, an inter-ministerial body called the National Environmental Advisory Council (NEAC) was mandated and constituted in 2008. The NEAC first met in May 2008, with representatives

from each province, all ministers and some prominent government figures. Despite being mandated to meet annually, this is the only official meeting that the NEAC has undertaken.

109. The **Forest Law**, which has not yet been approved by parliament (August 2011 was signed into effect in September 2011), provides for the management, conservation and sustainable use of forests and forest resources in Afghanistan. The law has specific guidelines for forest and forest resource management (Articles 5, 6 & 22), conservation (Articles 7, 12 & 17), use (Articles 13, 15 & 20) and rehabilitation (Article 21) in protected (Article 11) and unprotected (Article 10) areas.
110. The proposed **Rangeland Law** provides a framework for the administration, management and use of rangelands and rangeland resources in Afghanistan. In particular, the law has detailed provisions for the administration (determination of ownership, usufructuary rights, conflict resolution and rationalisation of access rights) of private (Chapter 4), community (Chapter 5) and public (Chapter 6) rangelands. The law also defines the roles of the Afghan national and regional governments in the administration and management of rangelands at district, provincial and national level (Chapter 7).
111. The **Water Law**¹¹¹ is intended to protect water resources, ensure fair distribution of water, to fulfil the rights of water users, and to ensure sustainable and efficient use of water resources. Article 32 states that large water resource development projects are subject to EIAs, that users must not utilize water in a manner that detrimentally affects ecological systems and that downstream needs of aquatic ecosystems must be met. The Water Law has now been passed by the Lower House of Parliament but approval by the Upper House is still outstanding.

2.6 Stakeholder mapping and analysis

112. In order to develop a project that reflects both the needs of Afghans and to ensure that all local partners feel ownership of the project, the project document is based on information from stakeholder consultations. Consultations included an inception workshop held in April 2011 that was attended by 14 line ministries and government agencies, as well as research partners and a regional NGOP. In addition, the project has conducted meetings with five key ministries, five development partners, and governors and provincial officials in all identified priority provinces. All consultations were held between April and December 2011 by the international consultant, national consultants and UNEP core staff. Details of the stakeholder consultations are included in Appendix 7. Details regarding stakeholder participation in the project implementation are provided in paragraph 235.

2.7 Baseline analysis and gaps

Component 1: Climate change risk assessment, monitoring and forecasting, and information.

Baseline situation

113. At present Afghanistan has severely limited capacity to undertake climate change adaptation planning¹¹². The NAPA/NCSA process identified a significant lack of expertise within all relevant government departments as a result of the low level of education, poor

¹¹¹ MAIL. (2009) Afghanistan's Fourth National Report to the Convention on Biological Diversity.

¹¹² GIRoA. 2009. National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA).

financing for government departments, and the early stage of establishment of many of the government agencies. Climate change is not presently regarded as a national priority, and training and education about climate change has not occurred.

114. The country has completed its Initial National Communication to the UNFCCC, and it will be printed and issued in May 2012. This was undertaken with considerable external input and training, and is late compared to many other LDCs. The NCCC was formed as part of the INC preparation process, and is a formal coordinating committee that was established to ensure a coordinated and cross-sectoral approach for managing climate change impacts. The NCCC has only met once to date, and therefore has had limited input in national policy and strategies. The INC further highlights the challenges facing Afghanistan with respect to monitoring, assessing and planning for climate change. Despite significant training that was undertaken during the INC process with respect to greenhouse gas inventory monitoring, data gathering and management, and training to address the requirements of MEAs, it highlights the following as current shortcomings for the INC process: i) non-availability of data; ii) non-accessibility of data; iii) poor data organisation; and iv) no derivation of local emission factors, growth rates, soil carbon density, and other variables.
115. Afghanistan currently has very limited infrastructure to measure, collate and interpret meteorological, hydrological and climatological data. In addition, there is still poor coordination and information exchange between national partners. For instance, the United States Geological Survey (USGS) AgroMet (Agricultural Meteorology)¹¹³ programme has provided minimal weather-measurement structures in the form of 100 rain gauges distributed throughout the 34 provinces. The data from the rain gauges is gathered by MAIL and not currently exchanged with the AMA¹¹⁴. The AMA has only six functioning meteorological stations, and does not keep computerised records. Much of the historical weather data and many additional meteorological stations were lost or destroyed as a result of the history of war and social unrest. The World Meteorological Organisation (WMO) has committed to assist with the provision of essential infrastructure to the AMA through the Agro-Meteorology Programme and Reconstruction of the AMA project.
116. National structures also have limited technical capacity for developing climate vulnerability assessments and forecasting of climate change-induced risks to water and agriculture. At present, the AMA develops three-day weather forecasts based on prior experiences, and does not run any predictive models incorporating real-time synoptic information. Some training has been provided to national agencies in terms of reporting to such bodies as the UNFCCC, but no training in the forecasting, analysis and response to climate risks has been conducted.
117. A vulnerability assessment was undertaken during the NAPA process, and reported in the INC. This vulnerability process made use of regional models. However, the analysis suffered from a lack of capacity to undertake smaller-scale modelling. This is in particular a problem when considering Afghanistan's complex topography, which results in a high likelihood of local variation from regional trends. The lack of historical and limited current meteorological data, combined with sporadic and poor-quality econometric data mean that the models and vulnerability assessments, whilst invaluable as a general planning tool, are unable to provide for fine-scale planning for responses to climate change. Furthermore, data collection is still problematic in many areas of the country as a result of

¹¹³ This program has been subsequently renewed, and is considered as one of the baseline projects that the LDCF project upon which the LDCF project is building. The renewal is funded by the WMO, and the programme now integrates the AMA into the management of the process and data exchange mechanisms.

¹¹⁴ Mohammad Fahim Zaheer, Head of AgroMet. Personal communication with IC on 29 June 2011.

security concerns¹¹⁵. The NCSA specifically highlights that significant capacity-building is required in order for Afghanistan to be able to carry out: i) data gathering, ii) scientific assessments; iii) early warning systems; iv) climate change education; v) mainstreaming of climate change mitigation and adaptation; vi) development of sectoral strategies; and vii) climate risk screening.

118. Finally, Afghanistan does not have an established national Early Warning System (EWS) to reduce the impacts of climate change-induced emergencies. The just-completed United Nations Development Programme (UNDP) Comprehensive Disaster Risk Reduction Programme has established a National Emergency Operations Centre within ANDMA, and provincial emergency response centres have been established. This programme has largely been involved in establishing and operationalising ANDMA, building capacity for business plan development and post disaster rapid assessment. It has also operationalised a disaster management information system in two regions (Kudoz and Nangarhar) and has trained staff within these areas on the use of computers and English as a baseline. However, without an EWS comprising suitable forewarning, appropriate standard operating procedures and reliable infrastructure to reach communities in vulnerable areas, the national structures are limited to responsive action. At present, there is no capacity to undertake pre-emptive measures to reduce risk and prevent loss of life from climate change-induced hazards.

Component 2: Climate change adaptation and response strategies.

Baseline situation

119. At present, there is very limited knowledge within both national structures and the public about climate change. The NAPA is the first published national document with a specific focus on climate change adaptation, and the INC will be the first formal international communication regarding climate change. At present, there is a considerable amount of development work on-going in Afghanistan (many billions of dollars are currently being invested through military, reconstruction and aid programmes), but there is no integration of climate change adaptation or recognition of the potential impacts of climate change on this development work.

120. National policy and strategy do not have any significant mention of climate change. The National Energy Strategy (NES), the National Action Plan for Women in Afghanistan (NAPWA), the Strategic Water Policy, the draft Policy and Strategy for the Forestry and Range Management Sectors, the draft Transboundary Water Policy of Afghanistan and, most importantly, the ANDS contain no mention of climate change. This gap in knowledge means that the potential gains earned through the implementation of these strategies are at risk under conditions of climate change. The SNAP does specifically mention the potential dangers of climate change with respect to increasing risk of natural disasters, and calls for the development of an EWS. This, however, has not yet been undertaken.

121. In addition to the lack of knowledge about climate change, there is currently limited capacity to integrate such knowledge into the policies. Many government agencies (both ministries and specific authorities) do not have sufficient staff to allow for the revision of strategies and development of documents beyond what is perceived as their core activities. During the process INC development, a high-level, multiple agency body was formed to oversee the project and provide high-level input (see Appendix A 9.1 for full details of the TORs). At present, the NCCC meets only irregularly, and has limited capacity to carry out its mandate. However, it is the best-placed entity to promote climate

¹¹⁵ GIRoA, 2012. Draft Initial National Communication to the UNFCCC (unpublished; not yet released).

change adaptation in national policy and to ensure the mainstreaming of policies. The high level of the representatives from government departments in the NCCC could facilitate the uptake of the LDCF project within their respective agencies as well as ensure cooperation between them. At present, the NCCC lacks the capacity to effectively address the requirements of MEA obligations and to facilitate the accessing of international funds to assist with this process.

Component 3: Practices for water resources and watershed management piloted and tested in selected project sites.

Baseline situation

122. Adaptive capacity is low throughout rural and urban Afghanistan, largely as a result of the very high poverty levels and low awareness on climate change issues. Poverty limits the ability of communities to change current behaviour and to adopt alternative approaches to overcome climate change impacts. The marginal nature of current lifestyles means that a shift in activities that does not have an immediately beneficial outcome could result in starvation or loss of property.

123. In many areas, agriculture is limited to a narrow ribbon around rivers, or is rain-fed where there is sufficient annual rainfall. Surrounding areas provide additional ecosystem benefits such as fuelwood, fodder for animals and wild food sources, which supplement both income and food availability within rural communities. Even a slight shift in timing and intensity of rainfall, intense dust storms (in lowland areas) or a climate change-induced reduction in the availability of other ecosystem resources can have a catastrophic effect on rural livelihoods. Agricultural productivity is currently frequently subject to adverse climatic conditions, and such conditions are likely to increase as a result of climate change.

124. Furthermore, current improvements in rural infrastructure such as irrigation programmes and MHP installations are not designed to deal with the impacts of climate change. Increased flood intensity and siltation rates coupled with the lack of early warnings to communities may reduce the viability of such improvements, resulting in losses of development gains under conditions of climate changes. Protective measures to reduce these impacts such as comprehensive watershed management have neither been tested nor implemented in Afghanistan.

Component 4: Adaptive learning and dissemination of lessons learned and best practices.

Baseline situation

125. Afghanistan has extremely limited knowledge of techniques and methods for building resilience to climate change risks. Nationally, some work has been undertaken on developing best practices for agriculture under dryland conditions and promoting high-yield agricultural varieties. MAIL currently implements some research in these fields, and the action of other agencies such as the International Centre for Agricultural Research in the Dry Areas (ICARDA) complements and adds to this research. However, the sustainability of such approaches under conditions of climate change has not yet been examined. No national agencies are conducting research into methods to enhance the capacity of the country and rural communities to adapt to climate change. More specifically, there is great potential to explore the benefits of watershed management and promotion of an ecosystems management approach to adaptation as a cost-effective and multiply beneficial technique.

Overall

126. Afghanistan has experienced an extended period of instability and war, which has hindered development. The majority of the population is engaged in rain-fed rural agriculture or pastoral herding, which makes them extremely vulnerable to drought, floods and loss of soils. Unsustainable use and the resultant degradation of fragile or marginal lands have left rural communities particularly vulnerable to the impacts adverse climatic conditions. The projected increase in droughts and extreme weather events as a result of climate change is likely to decrease agricultural productivity, impact negatively on the livelihoods of poor individuals, and further degrade productive and marginal ecosystems within Afghanistan.
127. Baseline development is being undertaken throughout the country, as the international community is currently providing significant investment in infrastructure and priority development projects identified by the GIRoA. However, such development does not take into account the potential effects of climate change, and is therefore at risk of significant setbacks in the medium- and long-term.
128. Interventions are designed to complement the current and proposed activities undertaken by the baseline partners. The NSP and NABDP are focussed primarily on development in the project sites through the provision of irrigation and MHP infrastructure. Other activities include the development of local administrative and coordination structures (DDAs by the NABDP and CDCs by the NSP), and small-scale lending schemes to promote rural enterprise initiatives. The LDCF project has designed adaptation interventions that will be complementary to these activities, enhancing the efficacy of the baseline interventions even under conditions of climate change as detailed below:
- a) MHP projects – these infrastructural improvements are dependent on a regular river flow in order to provide power. Severe fluctuations in river flow can reduce their effectiveness, and can potentially damage attached infrastructure such as regulation mechanisms. In addition, siltation from erosion (likely to increase as a result of extreme weather) and flooding events can damage the MHP facilities and the attached infrastructure such as canals. The LDCF project will ensure the long-term sustainability of these structures by regulating river flow, increasing soil water infiltration and reducing erosion under conditions of climate change.
 - b) Irrigation projects – The NSP and NABDP (and a large number of other projects as detailed in Appendix 10) provide irrigation infrastructure in order to promote agriculture within the catchments in which the LDCF project is operating. Such irrigation projects are invaluable to local communities, but are also vulnerable to siltation, reduced water flow and damage from floods from climate change-induced extreme weather. The ecosystem management adaptation approach used by the LDCF project will reduce the impacts of such weather extremes by: i) increasing soil water infiltration and limiting the amount of runoff from degraded land; ii) reducing erosion; iii) regulating water flow; and iv) reducing the likelihood of extreme floods within the selected catchments. This will increase the efficacy of the baseline projects and consequently increase community resilience even under conditions of climate change.
 - c) Establishment of local institutions (CDCs/DDAs) – the empowering of local communities to undertake planning for local development and to interact with government structures using a bottom up approach is a significant outcome from these two rural development initiatives. By interacting with these structures and providing training in climate change adaptation approaches, the LDCF project will further empower the communities and entrench the decentralisation paradigm. It will also enable the CDCs to implement long-term plans that will increase the resilience of local communities and provide long-term climate change adaptation capacity.

- d) Rural development infrastructure – the provision of rural access roads and bridges by the NSP plays an essential role in allowing rural communities to access markets, and therefore potentially providing additional income to rural communities. Under conditions of climate change, much of this infrastructure is at risk of being damaged or degraded through extreme weather-induced landslides and flooding. The LDCF project will reduce the impacts of climate change on this infrastructure using the ecosystem management adaptation approach to stabilise slopes, reduce flooding and siltation, and regulate water flow in rivers.

129. The final baseline projects are the AgroMet programme that is being refinanced by the WMO over the period 2012 to 2020, and the Rehabilitation of the Afghan Meteorological Authority (RAMA) project (also funded through the WMO). The principle focus of AgroMet is on the installation of meteorological stations and training of AMA staff on the Global Change Information System being set up by the US National Oceanic and Atmospheric Administration. The AgroMet programme training will therefore enable the AMA to access international climate information in a useful form, and will provide the means for gathering weather data and records within the country. To complement these activities and enhance the capacity of the AMA to assist in climate change adaptation planning, the LDCF project will provide training on climate vulnerability analysis and data interpretation. Establishment of the climate information data network will facilitate the AgroMet meteorological data collection. Furthermore, the outputs of the vulnerability analysis will provide valuable inputs into the GCIS system. Close coordination with the WMO during the inception stages of the new phase of AgroMet will enable this complementarity to be fully realised.

130. The RAMA project is envisaged to enhance the capacity of the AMA to provide baseline weather information through the establishment of an MESSIR data gathering and management system. This will allow AMA to undertake weather forecasts with better accuracy, and will establish a baseline capacity for data management and interpretation. The LDCF project hopes to capitalise on this baseline capacity in order to establish a national EWS that will allow Afghanistan to plan for the impacts of climate change-related weather fluctuations and concomitant extreme events.

131. The project has established linkages with government programmes and policies to ensure the generation of multiple benefits at the community, district, provincial and national levels. Main assumptions underlying the project design include:

- demonstration sites are best placed to display the benefits of proposed measures to adapt to climate change;
- climate change concerns are not overshadowed by other emergency matters, urgent projects, or civil unrest;
- large-scale infrastructural developments will not take place within the project areas during project implementation that would disrupt the project activities; and
- there is political commitment at the national and local levels to enforce new and existing regulations on the use and development of resources and the environment.

2.8 Linkages with other GEF and non-GEF interventions

132. Current GEF projects in Afghanistan include the preparation of the INC, which is due to be signed by government in early 2012, and the preparation of the National Biodiversity Strategy and Action Plan (NBSAP)¹¹⁶, which will run through to the end of 2012. The LDCF project will integrate the knowledge from the INC programme, and will make use of the administrative and policy vehicle created by this project in the form of the NCCC. The GEF NBSAP project will focus on the development of a strategy, as well as the

¹¹⁶ <http://gefonline.org/projectDetailsSQL.cfm?projID=3174>.

mainstreaming of biodiversity conservation within NEPA, MAIL and other ministries. Field projects for the NBSAP project will focus on the Shah Foladi National Reserve project in Bamyan Province. As such, there is great potential for synergy between the LDCF project and the communities in valley areas proximal to the reserve. The Implementing Agency (IA) for both of these projects is UNEP, and the Executing Agency (EA) is NEPA, which will ensure that there is no overlap of activities between the two projects, and that there is strong cross-pollination of concepts and exchange of lessons learned with respect to conservation protocols and community interactions. Finally, the LDCF project will be operating upon the priority activities identified during the NCSA/NAPA project funded by GEF and completed in 2005.

133. The project is receiving parallel co-financing from the **National Solidarity Programme (NSP)**, which is funding complementary activities within the selected provinces and at a national level. The NSP is a very large scale programme funded by multiple donors, including the World Bank, the Afghanistan Reconstruction Trust Fund (ARTF, funded by 14 different nations), the Japanese Social Development Fund (JSDF), and a number of bilateral partners. It is implemented by the MRRD. The NSP is the primary vehicle for promoting rural development in Afghanistan, and it operates through the establishment and empowering of CDCs throughout the country. These CDCs prepare community development plans, and apply for funding of such activities through the NSP. Activities undertaken by CDCs include a number of infrastructural improvements such as provision of irrigation canals, access roads and bridges, water supply and sanitation improvements, and MHP schemes. The NSP also provides education and livelihoods improvements, although these account for a small part of the budget. As of September 2011, the NSP had disbursed over \$888 million to CDCs, and spent more than \$1.2 billion. The NSP has committed \$10 million for development activities in the selected districts of the priority provinces, and this baseline financing has been allocated for a number of activities (irrigation, agricultural expansion, MHP plants and infrastructural improvements) that will benefit directly from the additionality of the LDCF project's activities. The NSP is also contributing to the PMC costs through the provision of project office space and operational team time in each of the target priority provinces. It is also interested in facilitating the uptake of knowledge generated through the LDCF project into normal NSP operations and national structures through which it operates.
134. The **National Area-Based Development Programme (NABDP)** is another permanent programme of the MRRD. Operating through seven regional offices, the NABDP focuses on establishing District Development Assemblies (DDAs) and training them in good governance practice and infrastructure project planning and implementation skills. This district-level governance is then used to provide service delivery and livelihood diversification through the productive infrastructure. The NABDP is currently in Phase II (1009 – 2014), facilitated by the UNDP and funded by nine European countries to the amount of \$294.7 million. The principle focus of the NABDP is on: i) local institution building in the form of DDAs to promote private-public partnerships; ii) developing rural infrastructure in the form of roads, bridges and other essential components; iii) natural resource management through community interaction; iv) rural energy development, particularly renewable rural energy in the form of MHP projects; and v) rural economic development to provide a conducive environment for rural enterprise initiatives.
135. Policy development is a very small part of the NABDP's actions, but the programme has helped to develop the draft Renewable Energy Policy through the Energy for Rural Development in Afghanistan (ERDA) sub-project. The NABDP is also currently providing support to the change management process in the MRRD, and sits on the rural development cluster currently developing the National Priority Plans for rural Afghanistan. Although the policy component of the NABDP is a small part of its budget, it is

nevertheless significant in terms of overall investment, since the project itself has secured over \$ 170 million since it started. Of the total amount invested through the NABDP, \$ 2.4 million has been allocated for activities in the priority provinces in which the LDCF project will be operating, including development of MHP under the ERDA sub-project, and the policy component of NABDP activities. These components will benefit directly from the ecosystem management adaptation interventions undertaken by the LDCF project as illustrated in Section 3.3. The NABDP has also expressed a specific desire to integrate successful practices piloted by the LDCF project into its standard operations, and to facilitate national uptake through the MRRD.

136. Another essential baseline partner for the LDCF project is the **Agro-Meteorology (AgroMet) Program**. This programme was initially operated by the USGS and focussed on the development of weather monitoring and agricultural prediction capabilities within MAIL. The WMO has agreed to provide extra funding to the project and extend the period from 2012 to 2015. The AgroMet programme aims to extend the meteorological data gathering capacity of national institutions and to provide infrastructure and training for a global climate change observation system. By developing synergies with baseline activities of the AgroMet programme, the LDCF project will assist in the provision of training for capacity building in data management and interpretation, climate impact modelling and development of vulnerability maps. Close interaction with the AgroMet programme will ensure complementarity and development of synergies to develop Afghanistan's capacity to carry out climate change monitoring, modelling and prediction.
137. The WMO has also provided additional funding to the AMA through the **Rehabilitation of the AMA (RAMA)** project. This funding is provided in order to develop the baseline capacity and infrastructure of the AMA, and includes an integrated MESSIR system for the coordination of weather data, weather forecasting and data integration. The project also includes staff training in the usage of the system. The LDCF project will build upon this base by enhancing the capacity of the AMA to undertake long-term climatological modelling, and to assess climate vulnerability. In total, the two WMO projects are contributing \$1 million in baseline co-finance for the LDCF project
138. The LDCF project will also be closely coordinated and linked to the following activities that are currently underway or have recently been completed in Afghanistan:
- The UNDP/UNEP **Strengthened Approaches for the Integration of Sustainable Environmental Management in Afghanistan (SAISEM)** programme is designed to promote and build institutional capacity of the Afghan government and communities for sustainable environment management, and to improve the capability of national and local governance bodies for natural resources and disaster management. The project has run beyond the original timeline, and is scheduled to be completed in 2012. It is therefore not considered a suitable source of co-finance. However, the lessons learned from this project with respect to sustainable environmental management will be integrated into the local-level engagements undertaken by the LDCF project.
 - The USAID-funded \$6.7 million **Pastoral Engagement, Adaptation and Capacity Enhancement (PEACE)** Project was initiated in 2006, and has been extended to run to the end of 2012. The project is aimed at promoting "the development of the livestock sector by supporting pastoral land tenure conflict resolution, [introducing] new technologies to improve rangeland management, livestock production, and marketing. This project also builds the capacity of government personnel responsible for planning and implementing livestock development and rangeland resource management." The PEACE project has found and is digitising a 25,000-specimen herbarium at the University of Kabul, and has produced field guides to rangeland vegetation that are essential sources of supplementary information for ecosystem management protocols (see Appendix 11 for a draft list of species with potential

multiple benefits for ecosystem management adaptation). PEACE also has considerable experience in resolving resource disputes in rangeland areas through their “Peace Ambassador” programme.

- The **Irrigation Restoration and Development Project (IRDP)** is a joint World Bank and GfRfA-funded project that aims to restore and upgrade irrigation facilities throughout the country in line with national priorities. It has also received additional funding from the FAO to provide technical assistance to MEW, building on the gains of the now-complete Emergency Irrigation Rehabilitation Project. Included in the project is a component to upgrade and provide hydro-meteorological services. This will be an essential component of the data exchange network.
- The **National Emergency Rural Access Project (NERAP)** is another World Bank-funded programme that aims to provide year-round access to basic services and facilities in certain rural areas of Afghanistan by 2013. This has been undertaken through the rehabilitation and maintenance of rural access infrastructure, particularly roads and culverts. This infrastructure is vulnerable to damage from climate change-induced extreme weather events, and it is hoped that the LDCF project will ensure additional protection for infrastructure improved through the action of NERAP in the priority provinces.
- The **Regional Integrated Multi-hazard Early Warning System for Africa and Asia (RIMES)** project was established in 2009, and has 13 member states, with 18 collaborating countries (of which Afghanistan is one). RIMES is a collaborative program that is designed to provide regional early warning systems and identify new and emerging technologies and research products for use in such systems. By sharing funding between member states, the costs of establishing such EWSs are reduced. Afghanistan’s current lack of technical capacity and infrastructure means that it has not been included as a member state. However, the current RIMES project will enhance Afghanistan’s capacity. This project is planned to run over the period 2012 – 2016, coinciding with the implementation period of the LDCF project. The RIMES project’s focus is on building national structures for a regional EWS. In particular, RIMES will be constructing a training centre with necessary equipment and facilities for this regional early warning system, in conjunction with capacity building. Through close coordination with the RIMES project (as well as the baseline RAMA and AgroMet projects), the LDCF project will provide standard operating procedures (SOPs) for a national EWS, It will also trial on-the-ground structures and lines of communication for the EWS to ensure the functioning of the system. In addition, the LDCF project will enhance the knowledge base and information exchange structures leading to the provision of EWS services.
- The **International Centre for Integrated Mountain Development (ICIMOD)** is a regional intergovernmental learning and knowledge sharing centre serving eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. ICIMOD aims to assist mountain people to understand the changes affecting these mountain regions as a result of climate change and human interventions. It promotes adaptation measures and helps facilitate the capitalisation on benefits of the changes. In addition, ICIMOD assists in dealing with transboundary issues associated with water and resource management. It is an essential partner for knowledge exchange and climate change adaptation information for the LDCF project.
- The Regional Climate Change Adaptation Knowledge Platform for Asia and Asia Pacific Adaptation Network¹¹⁷ is another source of climate change adaptation information. Whilst the primary focus of the adaptation measures is for tropical south Asia, it is likely that interaction with this platform will facilitate the development of

¹¹⁷ For additional information, see www.climateadapt.asia.

appropriate climate change adaptation responses for certain components of the LDCF project.

139. The LDCF project will interact with and benefit from several on-going national and international UNEP programmes:

- The **Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA)** is a recent initiative designed to promote cohesive global efforts in the fields of “vulnerability, impacts and adaptation” (VIA). In partnership with WMO, UNESCO and several other partner organisations, UNEP has embarked upon this joint programme to prioritise, accelerate, harmonise and communicate VIA research. The four principal functions and outputs of the programme are: i) coordinating and convening activities of the scientific community; ii) promoting a science-policy dialogue; iii) communicating within and outside the community; and iv) cultivating a new generation of VIA scientists. The strong overlap between the outputs of this programme and the goals of the LDCF project mean that PROVIA will be able to provide considerable input through the mobilisation of international expertise and techniques for Afghanistan. The interface between science and the policy component will be especially important during the process of development of the national climate change strategy.
- A GEF **Capacity Development Programme for Implementation of Multilateral Environmental Agreements** has recently been approved in Afghanistan, and will be implemented during the LDCF project implementation period. This project is designed to enhance the ability of NEPA to facilitate and manage Afghanistan’s obligations under the various MEAS to which the country is a signatory. Careful coordination between the LDCF project and the GEF project will ensure that training and capacity building within the two projects is complementary and synergistic.

Additional projects with which the LDCF project will establish linkages are detailed in Appendix 10.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1 Project rationale, policy conformity and expected global environmental benefits

Project rationale

140. The project will respond to the climate change impacts and climate variability adversely impacting the water resources of Afghanistan. It will also implement activities to ensure that Afghanistan can withstand future climate change impacts through i) demonstrating adaptation activities at the community level; ii) promoting research and generating appropriate data for climate change planning; iii) building capacity; and iv) promoting the development of pertinent policy.

141. Specific activities undertaken by the project include: i) building capacity within national and local structures to predict and respond to climate change-induced extreme weather events; ii) building national capacity to plan for the long-term effects of climate change; iii) integrating climate change adaptation into national policy and development plans; iv) improving local-, district- and national-level awareness of climate change risks and adaptation; v) implementing small-scale adaptation measures to demonstrate successful adaptation in several sites and at scales ranging from villages to small watersheds; and vi) developing a national climate change adaptation strategy.

142. The project will pursue an innovative ecosystem management approach to adaptation in order to develop resilient human-inhabited ecosystems, enhancing the benefits provided by ecosystems and ensuring their resilience under conditions of climate

change. Ecosystem management adaptation builds resilience in vulnerable and degraded ecosystems because of its multi-disciplinary approach and landscape-level adaptation focus. A primary focus of the ecosystem management adaptation process is the establishment and re-establishment of indigenous plant species with multiple benefits to local populations (see Appendix 11). This approach builds healthy, socially beneficial and well-managed ecosystems as natural infrastructure to increase the adaptive capacity of communities and areas to climate change impacts as well as to promote disaster risk reduction. Although the activities are site-specific, the adaptation benefits will accrue at multiple scales, including small highland water catchments to large downstream basins. Downstream benefits of the LDCF project interactions will ensure that the cost-effectiveness of the project interventions is maximised.

143. In addition to the promotion of ecosystem services for broad-scale benefits, the ecosystem management adaptation approach will improve the livelihoods of vulnerable populations. Direct benefits include the establishment (and re-establishment) of indigenous plant species with multiple uses to local populations, and improved agricultural yields through sustainable management of available resources. Local livelihoods will be improved through the provision of ecosystem-based marketable products (e.g. fruit, wood, honey and medicinal herbs) and enhanced agricultural productivity.
144. Through the achievement of the above activities, the project will alleviate critical barriers that exacerbate communities' vulnerability to climate change, and that prevent effective adaptation at the local and national levels. By focusing on priorities identified in the NAPA, the LDCF project is responding to Afghanistan's principal identified climate change adaptation issues. These local-level interventions will ensure the development of capacity within communities and local authorities to adapt to climate change.
145. The LDCF project will also provide national benefits through interaction with relevant stakeholders, including government agencies, development partners, international research forums and relevant NGOs. Local-level interventions will be analysed and lessons learned will be documented, which will enhance the national body of knowledge for climate change adaptation. In addition, critical shortcomings in the capacity of national agencies to plan for and respond to climate change impacts will be addressed through awareness-building, training, policy development and capacity-building. The multi-sectoral nature of climate change will be addressed by empowering the NCCC and the component agencies to integrate climate change adaptation into their sectoral plans. Furthermore, knowledge and information about climate impacts within Afghanistan will be gathered, and vulnerability maps prepared from these data to enable appropriate long-term climate change adaptation planning.
146. Linkages between the national interventions and the local level interventions will be established through knowledge transfer between different stakeholders. The learning-by-doing approach used for the interventions will help to generate information on appropriate methodologies for adaptation that can be mainstreamed at a national level. Furthermore, the establishment of a climate EWS through development of national agencies will be piloted within the priority provinces, allowing the process of EWS delivery to be tested and refined.
147. Overall, by implementing an adaptive learning approach throughout the project implementation and ensuring clear communication between multiple sectors (including NGOs, government agencies and ministries, local communities and international partners), the project will enhance the resilience of Afghanistan, and facilitate adaptation to climate change impacts at the local, provincial and national levels.

Policy conformity

148. The LDCF project addresses urgent and immediate adaptation needs for water management in Afghanistan. The project is well aligned with the country's principal development policy, the ANDS (2008-2013, see paragraph 101). The LDCF project will engage with the revision of the ANDS due to occur midway through the project implementation. This will ensure that climate change adaptation goals are integrated into national strategy, and ensure alignment of the LDCF activities with further long-term national policy. As outlined in the Policy Framework section (within Section 2.5), the LDCF project will contribute to the achievements of the objectives of several important Afghanistan policies, including:

- The NAPA/NCSA;
- Forest policy;
- Water strategy; and
- Energy strategy.

LDCF conformity

149. The objective of the LDCF is to fund urgent and immediate adaptation needs in the Least Developed Countries as identified in their NAPAs. This project conforms to the LDCF's eligibility criteria, namely: i) undertaking a country driven and participatory approach; ii) implementing the NAPA priorities; iii) supporting a "learning by doing" approach; iv) undertaking a multi-disciplinary approach; v) promoting gender equality; and vi) undertaking a complementary approach, as described below.

- **Country driven and participatory approach:** activities to be undertaken by the project were selected through numerous stakeholder consultations (see Section 2.3) and are therefore in line with country priorities. More details on conformity with national priorities are provided in Section 3.5.
- **Implementing NAPA priorities:** the project will address the high-priority adaptation projects identified during the Afghanistan NAPA process "Community-based watershed management" and "Improved water management and use efficiency". It will also address identified additional priority projects, including "Improved terracing, agroforestry and agro-silvo pastoral systems" as well as several lower priority NAPA adaptation measures ("Climate-related research and early warning systems", "Rangeland management" and "Improved food security").
- **Supporting a "learning by doing" approach:** the project will support a "learning by doing" approach by building capacity at national and provincial levels. This will allow for the identification of additional vulnerable areas and relevant adaptation measures, which can be replicated in other areas of Afghanistan. The successful adaptation measures piloted by the project will be used to inform national and sub-national development plans and policies, and to build capacity within the identified communities to adapt to climate change conditions. Furthermore, the project is designed to complement other on-going and planned projects and programmes without duplicating them.
- **Multi-disciplinary approach:** as previously mentioned, the project includes three principle components: i) developing national capacity to monitor, assess and respond to the effects of climate change; ii) developing strategies for climate change adaptation and promoting their mainstreaming into national policy; and iii) demonstrating effective adaptation measures at the local scale. Within each component, the project will undertake a number of different activities (see Section 3.2) to facilitate adaptation to climate change impacts on water and livelihoods. These activities will integrate interventions relevant to many different sectors of national policy and the economy.
- **Gender equality:** Gender equity in Afghanistan is a challenging subject given the historical role of women during the rule of the Taliban. The ANDS and the National Action Plan for the Women of Afghanistan both contain guidelines on gender

mainstreaming, and these guidelines have been taken into account in the planning of all project activities. The project stipulates that at least 30% of the project activity participants should be women, and wherever possible it will engage with and promote women's *shuras* and other gender-focussed groups.

- **Complementary approach:** In order to build upon existing plans and avoid duplication of efforts, the project will work in conjunction with relevant on-going projects in Afghanistan (see Section 2.8). It will build upon the activities of the identified baseline projects, ensuring that they are able to continue under conditions of climate change, and will exchange information with other relevant projects to ensure that valuable lessons learned are disseminated as widely as possible.

Overall GEF conformity

150. This project has been designed to meet overall GEF requirements in terms of implementation and design. The following core GEF criteria have been addressed:

- **Sustainability:** Training and capacity building of communities, local and national officials are project priorities. As such, the ecosystem management adaptation measures piloted and strategic documents developed will be upscaled and extend beyond the project lifetime. See the section on sustainability (Section 3.7) for more details.
- **Replicability:** The project aims to document all studies/ analyses and best practices as well as include participation of all partners to provide for the development of a robust planning framework. In addition, plans for upscaling key project activities, will also be developed during the course of the project. The project aims to promote/facilitate the development of a policy framework that will assist in the promotion of similar ecosystem management adaptation activities throughout the country. Furthermore, by disseminating lessons learned through appropriate networks, future adaptation endeavours within the country are more likely to be successful. See the section on Replicability (Section 3.8) for more information.
- **Monitoring and evaluation (M&E):** The project design includes an effective M&E framework (see Section 6), which will enable on-going adaptive management, ensuring that lessons are learned and disseminated by producing regular progress reports for stakeholders. See Section 6 on M&E for more information.
- **Stakeholder involvement:** The project design was formulated as a result of extensive stakeholder consultations (see Section 5) and will ensure the involvement of stakeholders during project implementation and monitoring.

3.2 Project goal and objective

151. The **objective** of the project is “to increase resilience of vulnerable communities and build capacity of local and national institutions to address climate change risk”¹¹⁸. The overall **goal** of the project is to increase the resilience of Afghanistan's society and economy to the effects of climate change and to enhance the capacity of GIRoA to undertake effective planning on adaptation.

Project components and expected outputs

152. The project will build on the baseline projects identified during the PPG, ensuring their long-term sustainability in the face of climate change, and enhancing the country's adaptation capacity. Details on this complementarity are provided in Section 3.3 below.

Component 1: Climate change risk assessment, monitoring and forecasting information.

¹¹⁸ The goal was stated as “to increase resilience and enhance key adaptive capacity to climate change –to – water related risk in Afghanistan” in the PIF. It has been restated to provide clarity.

Adaptation alternative

153. This single-outcome component of the LDCF project will increase the national capacity to gather and interpret information relevant to climate change, to assess the potential impacts of a changing climate and to plan for and respond to climate threats in a timely manner. Risk assessments will be undertaken and vulnerability maps produced for all areas in the country as part of Outcome 1 activities (see description of Outcome 1 below). These assessments will aid in planning and development throughout the country, and will identify areas and communities most at risk to climate change impacts. This will enable the prioritisation of future adaptation funding and efforts, and maps will be tailored to assist in preparatory work by national and local government for climate change adaptation. In order to produce these maps, the LDCF project will coordinate with both the RAMA and the AgroMet programme to build the capacity of national institutions to carry out such broad- and fine-scale planning activities. Through the development of a strategic data-sharing platform as well as coordination of relevant government (AMA, MAIL and ANDMA), non-governmental (USGS, ISAF) and regional agencies (ICIMOD, RIMES), current data and technical shortcomings will be overcome. This data network will involve connecting technical experts from appropriate ministries with each other and facilitating regular communication between them, therefore strengthening the inter-ministerial linkages. This will ensure the success of the climate change planning undertaken within the LDCF project.

154. In addition, the LDCF project will pilot a strategic EWS within the identified priority districts to facilitate national responses to short-, medium- and long-term threats arising from irregular weather and climate conditions associated with global climate change. Based on this pilot scheme, and in coordination with the baseline partners, the project will develop SOPs and national reporting structures to facilitate the rolling out of this EWS nationwide.

155. This component will also generate technical and policy briefs on the risks of climate change to the water sector, and to Afghanistan as a whole. These briefs will combine the current state of scientific knowledge with outputs of the vulnerability mapping exercise and the results of the various adaptation approaches undertaken in Outcome 3, and will be circulated amongst all identified stakeholders to promote awareness of climate change. The briefs will be complemented by a training programme within government and partner organisations to enhance awareness of climate change impacts and possible approaches that increase national resilience and adaptation capacity in the face of such impacts.

156. It is anticipated that Component 1 will benefit from interaction with PROVIA, the UNEP-led multi-agency joint programme on research and policy for VIA. Exchange of knowledge and strategy between international researchers and Afghan scientists will facilitate the capacity of local partners. Overall, this component will facilitate the development of capacity in government agencies (primarily ANDMA, AMA, NEPA and MAIL) to plan for and implement long-term climate change adaptation in Afghanistan.

Outcome 1: Increased capacity and knowledge base for assessment monitoring and forecasting of climate change-induced risks to water in Afghanistan.

Output 1.1. Improved tools to assess, monitor, predict and interpret climate change related risks and associated training course development and delivery.

157. This Output is designed to address the serious shortcomings in collection and interpretation of climate data in Afghanistan's relevant agencies (particularly AMA). Building on the identified baseline activities, this output will build capacity for the relevant agencies to collate and interpret climatological data, to model climate change risks, and ultimately to produce vulnerability maps at a national and sub-national level in order to

facilitate appropriate climate change adaptation planning. This will be carried out by X identifying appropriate models and data products, and carrying out training of national staff in association with international specialist partners.

The activities to be implemented under Output 1.1 are:

- 1.1.1. Undertake an institutional mapping exercise and a training needs analysis in relevant government agencies to determine shortfalls in assessment, monitoring, prediction and interpretation of climate change risks.
- 1.1.2. Develop a strategic plan and data network for climate and information management and exchange (including MAIL's AgroMet, USGS, ISAF weather data, and other relevant partners).
- 1.1.3. Develop strategic regional and international partnerships to facilitate capacity development and regular exchanges of data for climate change risk assessment, prediction and monitoring.
- 1.1.4. Implement training courses (including at least one national-level training workshop) for all relevant agencies based on the results of Activity 1.1.3. This should include climate change modelling (external course), seasonal forecasting and hydrological modelling for flood prevention.
- 1.1.5. Identify appropriate climate models and climate change vulnerability tools for the country on the basis of available data
- 1.1.6. Assess climate change risks and produce vulnerability maps by undertaking regional climate change models, spatial models and hydrological models as necessary.

Output 1.2. A model and standard operating procedures for a national EWS system for the systematic collection, analysis, and distribution of information on climate change-induced risks to water resources at the national and community levels developed, and piloted in the four priority provinces.

158. This output will facilitate the development of a climate change EWS for Afghanistan by building on the identified baseline activities within AMA and ANDMA. By providing a system for the exchange of climate-related information from sources that are able to assess risk and vulnerability to the communities within the identified priority provinces, a set of standard operating procedures and structures for information exchange will be established. A trial of the EWS will be conducted in the four priority provinces. It is hoped that this pilot will allow the refinement of procedures to ensure the mainstreaming of the EWS. A particular focus will be on the provision of climate-related early warning information to project priority areas implementing novel dryland agricultural and irrigation techniques.

The activities to be implemented under Output 1.2 are:

- 1.2.1. Assess the current state of early warning and reporting systems from ANDMA, AMA, AgroMet, PEACE and other relevant organisations, including gaps in knowledge, practice and capacity.
- 1.2.2. Examine options for climate early warning systems and present them to policy-makers and decision-makers in relevant ministries (MAIL, MEW, and ANDMA). This will be undertaken in collaboration with the baseline partners (AMA and the WMO projects) to enable adoption of suitable EWS options.
- 1.2.3. Develop model and SOPs for EWS, from data acquisition to delivery to communities, through stakeholder consultation and expert analysis.
- 1.2.4. Establish pilot EWS in four priority project districts. This will include
 - providing necessary infrastructure to communities in trial areas to facilitate EWS delivery (e.g. solar cells and radio or television for remote communities, pre-paid mobile phones or two-way radios for reporting agents); and

- training communities, local district officers and national officers and test the early warning system.

Indicative infrastructure costs for trialling the EWS model are shown in Appendix 12.

Output 1.3. Technical and policy briefs for policy makers on climate change risks to water and other key sectors developed.

159. This output will build on lessons learned through the interventions in Component 3, knowledge gathered from regional partners in Component 4 and the national climate change adaptation policy developed under Output 2.3 to develop short policy and technical briefs to for policy-makers in water and other relevant sectors.

The activities to be implemented under Output 1.3 are:

- 1.3.1. Prepare policy and technical briefs on climate change risks for water and other sectors affected through water shortages or flooding.
- 1.3.2. Conduct a training course on climate change risks to water and other relevant sectors for policy makers in government.

Component 2: Climate change adaptation and response strategies.

Adaptation alternative

160. This component of the LDCF project will assist Afghanistan in developing an overarching climate change adaptation policy, and promoting the mainstreaming of this policy and integration into all relevant national response strategies. This will be accomplished by: i) developing a climate change adaptation toolkit for assessing and mainstreaming climate change adaptation measures into relevant sectors; ii) building capacity within relevant government bodies to understand and integrate climate change adaptation strategies into multi-sectoral plans; iii) developing a national climate change adaptation policy in response to identified threats through a process of dynamic systems modelling (see Appendix 13); and iv) supporting the activities and capacity of the NCCC to coordinate climate change policy within various government sectors.

Outcome 2: Climate change risks integrated into relevant policies, plans and programmes.

Output 2.1. Tools and methodology for identification, evaluation and mainstreaming of climate change adaptation measures in the water sector and other water related/ affected sectors developed.

161. This output will provide national agencies with a toolkit through which sectoral and local threats from climate change can be systematically identified, and guidelines for appropriate responses to identified threats developed accordingly. The toolkit will provide guidelines for the mainstreaming of identified adaptation responses into sectoral policies, enabling engagement with private sector and public sector partners to ensure long-term sustainability.

The activities to be implemented under Output 2.1 are:

- 2.1.1. Survey international tools and methodologies for identification, evaluation and mainstreaming of adaptation measures.
- 2.1.2. Develop a climate change adaptation toolkit combining international and local-level knowledge, including the findings from the research and interventions in Outcome 3 and lessons learnt from other adaptation projects

Output 2.2. Tools and training material targeting the current inter-ministerial coordination mechanism for climate change risk and adaptation integration (NCCC) developed¹¹⁹.

162. The strengthening of the NCCC will facilitate the functioning of the data network established in Outcome 1, ensuring clear channels of communication and developing synergies in the multi-sectoral approach to climate change. In addition, by providing training to NCCC members on the management of international negotiations and assistance in coordinating to meet international commitments, the capacity of the Afghanistan government as a whole to take part in international climate change negotiations with a strong focus on adaptation issues will be improved. This will allow Afghanistan to take ownership of its international commitments and developmental policy with respect to climate change adaptation.

The activities to be implemented under Output 2.2 are:

- 2.2.1. Evaluate the effectiveness and knowledge base of the current inter-ministerial climate change structure in integrating adaptation and climate change risks into national policies and strategies.
- 2.2.2. Provide training and policy briefings based on results identified in 2.2.1, as well as promoting regular meetings to ensure that the NCCC facilitates the integration of climate change adaptation into relevant policies and strategies.
- 2.2.3. Provide training for government officials in relevant national agencies (NEPA and MAIL) to ensure that they understand their obligations under various MEAs and are able to prepare funding applications and negotiate under MEAs in order to access further international finance for additional activities.
- 2.2.4. Ensure and facilitate regular meetings of the NCCC to coordinate climate change awareness and climate change adaptation activities within the relevant government agencies

Output 2.3. Policy options to include climate change risk and adaptation measures for sectoral policies and plans (water, agriculture, and disaster and conflict prevention) developed and proposed.

163. Integration of climate change risk and adaptation measures into national policies and relevant sectoral documents will ensure the sustainability of the LDCF project outcomes, and will ensure Afghanistan is able to mainstream adaptive strategies. The LDCF project will facilitate this by developing an overarching climate change policy, which will guide the integration of climate change risks and adaptation into other sectoral policies in particular for water by promoting a resilient IWRM in the country. In order to do this, a dynamic systems modelling¹²⁰ approach will be taken to determining the potential impacts of policy changes, avoiding potential rent-seeking behaviour and the development of perverse incentives.

The activities to be implemented under Output 2.3 are:

- 2.3.1. Undertake a gap analysis of the national development plan and policies to determine the extent to which climate change risks are included.

¹¹⁹ The original Output as detailed in the PIF reads: “*Inter-ministerial coordination mechanism in place for CC risk integration*”. This has been changed in the PD because an appropriate inter-ministerial mechanism has already been created in the form of the NCCC. However, the NCCC requires significant support and assistance to ensure that it successfully fulfils its mandate.

¹²⁰ Dynamic systems modelling allows the complex interactions between variables in a system to be established and understood. For more details, see Appendix 13.

- 2.3.2. Undertake dynamic systems modelling to investigate the effects of potential climate change policy on national development priorities.
- 2.3.3. Develop an overarching long-term climate change adaptation strategy for Afghanistan.
- 2.3.4. Promote integration of climate change adaptation into national policies for relevant sectors.

Output 2.4. Capacities developed to implement the national climate change adaptation strategy and climate proofed sectoral plans.

164. At present, there is limited capacity within government bodies to integrate climate change adaptation goals into relevant strategies. This reflects both a lack of knowledge within the implementing agencies and, in some cases, a low capacity for modification of current plans as a result of a lack of knowledge or political will. Through the activities detailed below, the LDCF project plans to enhance the capacity of relevant government bodies to include relevant climate change adaptation-focussed activities in their sectoral plans.

The activities to be implemented under Output 2.4 are:

- 2.4.1. Undertake training needs assessment for relevant government bodies (NEPA, MAIL, MEW and MRRD).
- 2.4.2. Carry out training courses to build capacity of various sectors to understand and make use of the climate change adaptation strategy.

Component 3: Practices for water resources and watershed management piloted and tested in selected project sites.

Adaptation alternative

165. This single-outcome component encompasses the majority of the on-the-ground implementation of the LDCF project, with the exception of the piloting of the climate change EWS (Output 1.2). As such, it is planned that the outputs and activities under this component will provide essential learning-by-doing knowledge generation for pertinent activities that will enhance Afghanistan's climate change adaptation capacity. The majority of the remainder of the project is directed at the development of capacity and products at a national or institutional level, and the assessment, evaluation and mainstreaming of successful approaches identified through the learning-by-doing interventions carried out in Component 3.

166. The LDCF project will undertake on-the-ground activities to trial different ecosystem management adaptation approaches as well as novel water management approaches. These activities fall within three targeted areas identified in the PIF, namely i) efficient water management technologies adapted to intensive and prolonged droughts, ii) agricultural management practices adapted to drought and designed to reduce water needs, and iii) watershed management practices adapted to intensive drought and increased flooding. However, the outputs have been restructured to better delineate the different focal areas of the interventions. The interventions follow the "no regret" implementation principle (i.e. the interventions will provide an adaptation benefit under conditions of climate change, but should climate change impacts be less intense than predicted they will nevertheless provide a benefit to Afghanistan).

167. The core aspect of following an ecosystem management approach is integrated into all project interventions (see Section 3.1). This approach is based on an ecosystems approach to climate change adaptation, facilitating the establishment of functional and resilient ecosystems that provide multiple benefits and enhance livelihoods under

conditions of climate change. This approach illustrates UNEP's competitive advantage, and has been increasingly receiving attention (including most recently at COP17¹²¹) as a valuable approach to climate change adaptation. Specific interventions have been identified in the four priority provinces that will investigate different approaches for rangeland areas, mountains, wetlands, and peri-urban subsistence farmland. The variety of approaches and implementation sites will allow the project to establish a broad scientific basis for appropriate adaptation activities throughout Afghanistan.

168. Local communities and district officials will be trained in water management techniques and strategies to enable efficient watershed and sub-catchment management of water resources. This will increase available water and contribute to a reduction in inter-community tensions that have occasionally occurred over water resources between up- and down-stream communities. Activities undertaken in the same province, such as Outputs 3.1 and 3.2 in Badakhshan Province, will be particularly effective at strengthening regional climate change capacity by demonstrating an integration of infrastructural interventions and ecosystem rehabilitation interventions. Furthermore, by promoting efficient use of water resources and improving the regulation of water flow, no negative downstream effects will be generated. Improvements in water availability in the project sites will be achieved through improvements in efficiency and use of excess seasonal flow that would otherwise contribute to flooding downstream.

169. These interventions will be closely monitored, and successful approaches will be documented, shared and mainstreamed through activities under Outcome 4. Whilst the interventions are divided amongst Outputs 3.1, 3.2 and 3.3 according to their specific focus, the project plans to coordinate the interventions within each province under an umbrella programme. This will allow the development of synergies within the provinces, as well as building the capacity of provincial officials and community members to undertake multiple adaptation approaches.

Outcome 3: Reduction of climate change vulnerability in the selected project sites through local institutional capacity building and concrete interventions for improved water use efficiency.

170. By means of a learning-by-doing approach within the priority provinces, a number of different ecosystem management-based adaptation and enhanced agricultural and water management approaches will be undertaken. These approaches will be assessed throughout the project period to establish the most suitable and cost-effective methods of enhancing resilience despite increasing climate change-induced variability. The assessments will comprise cost-benefit analyses that will focus on quantifying improvements in yields, increases in associated income streams and input costs of the interventions. These assessments will provide data and information that will inform the national climate change adaptation agenda.

Output 3.1. Pilot demonstrations to build resilience in the irrigated agricultural sector through cost efficient water infrastructure and irrigation technologies implemented in Badakhshan Province.

171. This output will introduce efficient water management technologies to rural communities to enhance their agricultural output and assist in the regulation of water flow at village levels, thereby ensuring resilience despite climate change-induced water variability. Badakhshan province is situated in the northeast of the country, and lies within the Hindu Kush mountains (see Figure 6 and Appendix 14 for further details). It is typical of highland valley agriculture, which typically uses simple diversions in river valleys to

¹²¹ The 17th Annual Conference of the Parties to the UNFCCC, held in Durban, South Africa in December 2012.

flood fields, with occasional cultivation of valley sides when rainfall is high enough. The intervention is targeted to ensure their appropriateness for the specific environmental conditions within the site. Implementation through community structures with the facilitation of local NGOs will ensure local ownership of the activities. Knowledge gained from this intervention will be shared amongst project partners, and will inform the national climate change agenda being developed under Component 2.

Activities to be implemented under Output 3.1 will include:

- Construction of check dams of at least ~10,500 m³ increased capacity;
- Construction of at least 3 impounding water-storage dams;
- Introduction of at least 42 hectares of Affordable Micro-Irrigation Technology (AMIT) systems;
- Training of communities in maintenance of the above infrastructure/technology, including the topics of: i) water supply and demand management; ii) identification of system losses; and iii) management of the new irrigation systems; and
- Development of local water management plans in conjunction with local communities to promote an adaptive approach to water management, increasing the capacity of the community to adapt to climate change.

172. These activities will not have any negative downstream effects, since the majority of water for the storage structures will be provided in the spring season, when the rivers frequently experience a surplus of snowmelt, and often flood downstream areas. Regulation of the water supply will benefit both the project site and downstream areas. Further details of interventions are presented in Table 1 below.

Table 1: Pilot interventions to be implemented within Output 3.1.

Intervention	Site	Details	Number of households benefitting
Faizabad District, Badakhshan Province			
Improved water management at a local level through construction of check and impoundment dams, introduction of efficient micro-irrigation technologies, provision of community training in the above techniques, and development	Ashi, Rabat and Gazan village	<p>This intervention will build on the baseline NSP local activities directed at establishing irrigation canals. The intervention will provide check dams (~3,500 m³ increased capacity for each of three villages) plus at least one sand/gravel impounding storage dam per village. These additional check and impounding dams will improve the function of the NSP main check dam under changing water flow conditions from climate change.</p> <p>Improved low water-use systems (Affordable Micro-Irrigation Technology [AMIT] such as drip irrigation) will be supplied to ~424 households to provide irrigation to ~42 hectares of farmland.</p> <p>Total estimated cost for interventions in Output 3.1 is \$127,000 and is detailed further in Appendix 15: Indicative costs of micro-scale water efficiency measures in Component 3.1</p>	424

Intervention	Site	Details	Number of households benefitting
of local water use plans			

Output 3.2. Pilot demonstrations to build resilience in the dryland agricultural sector through drought-resilient crops, water harvesting and catchment restoration measures implemented in Balkh Province and Badakhshan Province.

173. This outcome will pilot a number of different agricultural management practices specifically targeted at ensuring adaptation of agricultural practices to climate change-induced intensification of droughts. Local communities and district MAIL offices will gain the capacity to undertake drought-resilient agriculture in Balkh and Badakhshan Provinces (see Appendix 14 for further details). These activities will build upon research already undertaken by MAIL, and in combination with key partners such as ICARDA. New knowledge will be generated through a learning-by-doing approach. Lessons learned from these interventions will be integrated into national policies and strategies through Component 2, and knowledge will be exchanged and disseminated nationally through the activities under Component 4. Furthermore, this component in particular will benefit from the piloting of the EWS to be developed in Output 1.2, which will allow the tailoring of drought resilient approaches to real-time warnings regarding climate-induced environmental threats.

174. The activities are designed to make more efficient use of available water, and should not have any negative downstream effects due to increased water extraction. Activities to be implemented under Output 3.2 will include:

- Identification and promotion of drought-resilient practices for Balkh and Badakhshan Provinces (including inter alia selection of drought-tolerant crop varieties, identification of low-cost water harvesting interventions, and identification of multi-use plant species suitable for watershed and rangeland restoration);
- Implementation of at least 400 hectares of water harvesting measures in Balkh, Dihdadi and Nahri Shahi Districts, Balkh Province;
- Distribution of drought-resilient crops in conjunction with current research undertaken by MAIL and ICARDA in Balkh, Dihdadi and Nahri Shahi Districts, Balkh Province;
- Restoration of at least 200 hectares of degraded watershed restoration using multi-use forests in Faizabad district, Badakhshan Province; and
- Training of communities in implementation of the above techniques and concepts of drought-resilient dryland agriculture and watershed restoration in the face of climate change.

Further details of interventions are presented in Table 2 below.

Table 2: Pilot interventions to be implemented within Output 3.2.

Intervention	Site	Details	Number of households benefitting
Implementation of appropriate	Balkh, Dihdadi and Nahri Shahi	Current irrigation methods in these villages utilise river diversion for flooding of fields and	400

Intervention	Site	Details	Number of households benefiting
<p>drought-resilient agriculture, water harvesting and water catchment restoration techniques and training in the above techniques in pilot villages in Balkh and Badakhshan Provinces</p>	<p>Districts, Balkh Province:</p> <p>Implementation of improved water efficiency techniques (i.e. water harvesting) for dry land agriculture. Three villages – one in each district – will be selected by local officials and national consultants during the inception phase.</p>	<p>open canals, which are highly water inefficient. In addition, much of the current agriculture in the province is rain-fed, which is highly vulnerable under conditions of climate change. Several approaches to improved water efficiency techniques will be trialled in several villages:</p> <p>Micro-catchment techniques such as strip crop-catchments, contour bunds and catchment ponds will be trialled on at least 400 ha. This will increase the rates of infiltration of rainwater into the soil for the growth of forage shrubs, fruit trees and crops, despite the increasing likelihood of drought.</p> <p>These simple methods of increasing water availability under climate change-induced increases in drought conditions and low rainfall will enhance the resilience of dryland agriculture. Training will be provided to both local communities and district-level MAIL staff and extension workers, to stimulate the uptake of the proposed methods.</p> <p>In addition, the use of drought-resilient species identified by MAIL and ICARDA and alternative drought-adapted species (identified through additional research and expert advice) to complement low water-use strategies will be promoted. Seeds and planting materials for at least one hectare will be supplied to at least 400 farmer households for three successive growing seasons. Communities will be instructed in appropriate cultivation techniques for reduced rainfall conditions. Costs of providing drought-tolerant crops are detailed further in Appendix 16: Indicative costs of introduction of improved drought-tolerant crop varieties for Component 3.2.</p>	
	<p>Faizabad District, Badakhshan Province: Ashi, Gazan and Rabat villages. Multiple-use indigenous fruit and nut trees, and rangeland</p>	<p>Local nurseries will be established for communities. The plants will be selected on the basis of their multiple uses (see Appendix 11 for some examples), and historical local availability. Multiple-benefit shrub and tree species will be used to restore 200 ha of extremely degraded slopes. This will provide significant adaptation benefits by reducing runoff and erosion into local rivers (thereby</p>	<p>400</p>

Intervention	Site	Details	Number of households benefitting
	species established in degraded watershed areas.	<p>improving water quality and reducing the likelihood of flooding). In addition, the plants selected will improve soil water filtration, increasing the water available for agriculture downstream and regulating water flow despite climate change-induced extreme weather fluctuations. Finally, the tree species selected will provide fruits and nuts for market sale and household consumption, improving the livelihoods and food security of the local communities. Other planted species will provide additional benefits to the local communities in the form of fodder, firewood from coppicing and medicinal plants. Training will be provided to the local communities in community-based natural resource management (CBNRM) and watershed management to ensure the sustainability of the restoration adaptation approach.</p> <p>Total estimated cost of interventions in Output 3.2 is \$664 000 and is detailed further in Appendix 17: Indicative costs of reforestation/forest restoration for Outputs 3.2 and 3.3.</p>	

Output 3.3. Pilot demonstrations to build resilience in rural peri-urban communities through restoration of aquatic zones in Daykundi Province.

175. This output will develop integrated watershed management plans and pilot interventions to restore the natural capital of highly degraded or strategically valuable aquatic zones, including *inter alia* riverbanks, wetlands, and floodplains. The latter will entail restoring or replacing vegetation cover and building low-cost flood barriers and water catchment structures. Sustainability of project activities will be enhanced by selecting multi-use plant species for watershed restoration, by assessing the socio-economic benefits of project interventions and by investigating the feasibility of using carbon finance to sustain and upscale watershed restoration.

176. Activities to be implemented under Output 3.3 will include:

- Restoration of degraded wetlands, riverbanks and catchment areas by re-vegetation of at least 120 hectares with multi-use plant species, and construction of at least 140 ha of low-cost water barriers and catchment structures. The sites include Seyon, Lazir and Pesok villages, Nili District, Daykundi Province (see Appendix 14 for further details).
- Training of communities in the implementation of integrated watershed management plans and the restoration of wetlands and rivers.

Further details of the interventions are presented in Table 3 below.

Table 3: Pilot interventions to be implemented within Output 3.3.

Intervention	Site	Details	Number of households benefitting
Nili District, Daykundi Province			
Peri-urban wetlands, riverbanks and catchment areas restored by re-vegetation of at least 120 ha of vulnerable or degraded aquatic systems, and construction of at least 140 ha of low-cost water barriers and catchment structures.	Seyon, Lazir and Pesok villages in the Daykundi Province	<p>The project will seek to alleviate climate change impacts at peri-urban areas of Nili Municipality and the villages of Seyon, Lazir and Pesok by implementing watershed management and green infrastructure planning. Activities undertaken to achieve this result will include: i) strategic revegetation/restoration of at least 120 ha of degraded wetlands, floodplains and flood-prone peri-urban areas, using suitable indigenous or locally-adapted plant species; and ii) construction of suitable water catchment contour structures and flood barriers such as stone bunds, soil berms and gabions over at least 140 ha of flood- and erosion-prone wetland areas. These activities will reduce degradation and promote planting of locally adapted species to enhance soil water penetration and reduce runoff. This will both reduce the impacts of climate change -induced extreme weather and enhance local livelihoods under conditions of climate change.</p> <p>Total cost of interventions in Output 3.3 is \$411,450. These costs are detailed further in Appendix 17: Indicative costs of reforestation/forest restoration for Components 3.2 and 3.3 and Appendix 18: Indicative costs of restoration of wetland/riparian areas to enhance water catchment and reduce incidence of flood for Component 3.3.</p>	2,000

Output 3.4. Creation and institutional strengthening of water management associations by training members on integrated water resources management and ecosystem based adaptation in Bamyan District and other pilot areas.

177. This output is designed to ensure that local communities that benefit from the LDCF project interventions are empowered to manage their own water supplies at a catchment level. Water management associations will be established, making use wherever possible of extant administrative structures such as *shuras* and CDCs, and the communities will be trained to undertake integrated water management at the local catchment level. Traditional water management techniques will be incorporated into lessons and built upon to ensure resilience under conditions of climate change.

The activities to be implemented under Output 3.4 are:

- 3.4.1. Establish community water management associations at all intervention sites, making use of existing structures (e.g. CDCs, *shuras* and village councils).

- 3.4.2. Develop training tools for IWM and ecosystem management adaptation at a local level. This includes a handbook for trainers, pamphlets in local dialects, and the provision of training to project partners to enable the communication of new concepts to local communities.
- 3.4.3. Conduct training workshops on climate change risks and adaptation within local communities. Initial workshops will focus on awareness raising with respect to the potential threats of climate change. Later workshops will promote CBNRM and integrated watershed management to enhance ecosystem management adaptation. There will be at least two training workshops conducted within each intervention area over the project duration.
- 3.4.4. Development of integrated watershed management plans, that include community-based adaptation measures, for at least 5 upper catchment areas bordering a proposed national park area. The sites are located in upper Ahangaran, Dukoni, Khushkak and Foladi Valleys, Bamyán District, Bamyán Province. Sub-activities will include:
 - drawing up community conservation plans, and restoration plans for the mountain area with CDC representatives from all communities;
 - developing an implementation strategy which will lead to sustainable community-managed green space in these upper valley areas, providing ecosystem services and flora and fauna conservation in a high ecological value area of catchments flowing north from the Koh-e Baba watershed; and
 - organising training sessions for communities and other provincial partners for conservation education and management of small-scale conservation areas in the mountains of Bamyán. Costs are estimated at \$75,000 per site (\$375,000 in total).

Component 4: Adaptive learning and dissemination of lessons learned and best practices.

Adaptation alternative

178. The low level of climate change adaptation knowledge within Afghanistan means that the learning-by-doing (adaptive learning) approach represents a valuable means of gathering pertinent information and building knowledge and capacity within national structures. The LDCF will result in increased knowledge of adaptation options at all levels, the establishment or strengthening of national and international knowledge exchange structures, and promotion of successful adaptation approaches throughout Afghanistan. The LDCF project will accomplish this by i) promoting public awareness of climate change issues, ii) capturing project lessons and disseminating them through relevant networks; iii) incorporating knowledge developed in the project into national public service training programmes; and iv) disseminating and exchanging information on adaptation measures for arid countries through regional and international networks.

Outcome 4: Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.

179. This outcome is designed to promote knowledge of good practices for adaptation to climate change-induced weather fluctuations. By promoting the sharing of climate change adaptation information from national, regional and international partners, this outcome will facilitate the development of awareness of the potential impacts of climate change and possible approaches to ensure long-term resilience despite the impacts. Knowledge generated from the project on good practices will be mainstreamed by engaging with private citizens, government structures and other stakeholders, and this will further facilitate the replication of successful approaches throughout Afghanistan.

Output 4.1. Project lessons captured in, and disseminated through a project specific web site, the Global Adaptation Network (GAN) and the Asia-Pacific Adaptation Network (APAN).

180. This output will ensure that the lessons learned through the implementation of the on-the-ground interventions as well as the national-level capacity building are made available to all stakeholders and interested parties. Throughout the LDCF project implementation period a knowledge management process will be run to ensure that the success and cost-effectiveness of different adaptation approaches undertaken by the project are assessed and tracked. A project-specific website will facilitate the exchange of information and promote its dissemination. Other means of dissemination and recording institutional knowledge that are already in existence will be capitalised upon, including the UNEP Global Climate Change Adaptation Network (weadapt.org)

The activities to be implemented under Output 4.1 are:

- 4.1.1. Knowledge management system to assess effectiveness of interventions and record lessons learned. This process will be undertaken throughout the project in conjunction with annual audits, allowing for incremental updates on the process. It will also
- 4.1.2. Assess relevant tools for distribution of lessons learned and institutional knowledge (GAN, APAN, Climate and Development Knowledge Network, Adaptation Learning Mechanism, WeAdapt).
- 4.1.3. Develop project specific website to increase visibility of project. This website should allow relevant project partners to interact and provide input, reducing the overhead involved in communication by circumventing the challenges inherent in travel within Afghanistan.

Output 4.2. Project knowledge shared with other countries in the region facing similar climate-induced drought and flooding hazards.

181. Exchange of climate change adaptation knowledge within the region is a valuable means of obtaining pertinent information relevant to local conditions. Through this output, Afghanistan will both demonstrate the progress made towards ecosystem management-based adaptation through the LDCF project, and gain knowledge from other regional partners with similar climatic conditions and probable climate change impacts. This will be achieved through interaction with present knowledge networks and identified knowledge partners, and through the hosting of a regional climate change adaptation workshop towards the end of the project implementation period. Knowledge gained through the learning-by-doing interventions in Component 3 and the policy and science development activities in Components 1 and 2 will be showcased and disseminated. It is hoped that raising the profile of climate change adaptation within Afghanistan in this manner will facilitate the integration of climate change adaptation into national development agendas.

The activities to be implemented under Output 4.2 are:

- 4.2.1. Examine current structures for adaptation knowledge exchange between regional countries. This includes interaction with appropriate networks
- 4.2.2. Establish long-term adaptation knowledge exchange structures with regional countries. The RIMES and ICIMOD structures are valuable for exchange of early warning and mountain-focussed information, but additional structures will be investigated to ensure all pertinent information is exchanged. Particular focus will be placed on exchanging information with bordering nations (Iran, Turkmenistan, Tajikistan, Uzbekistan, China and Pakistan) that are likely to experience similar climate change impacts.

- 4.2.3. Conduct a regional workshop to gather and exchange knowledge between regional countries facing similar climatic disturbances. This workshop will be conducted in the final year, and will share the project outputs and lessons learned, as well as allowing the integration of regional lessons into the national strategies.

Output 4.3. Project knowledge for national flood and drought prevention incorporated into training approaches and materials.

In order to facilitate a full institutional understanding of the effects of climate change and appropriate climate change adaptation strategies, it is necessary that national government agencies internalise this knowledge. With this in mind, this output will prepare training tools and courses for climate adaptation and flood prevention methodologies that capitalise on knowledge gained through the interventions implemented in Component 3, as well as research and knowledge exchange with partner organisations. These courses and materials will be made available to all stakeholders. Individuals within key ministries will be provided with training to enable them to further extend the capacity of their agencies by providing additional training themselves.

The activities to be implemented under Output 4.3 are:

- 4.3.1. Formalise training tools for climate change adaptation and flood/drought prevention from lessons learned. These lessons will include relevant sections of the SOPs from the EWS pilot undertaken in Output 1.2 as well as all relevant successful flood-prevention and –reduction interventions undertaken under Outcome 3.
- 4.3.2. Incorporate training tools into national public service training programmes in Afghanistan. This will entail the training of public service trainers in the necessary tools, and thereby enabling the training of MAIL, MRRD, MEW and ministry of Urban Development (MUD) officials in flood and drought prevention adaptation techniques.

Output 4.4. Awareness raising activities on climate change-induced risks to water resources and adaptation for local communities and key national policymakers delivered using appropriate means.

182. National awareness of the risks posed by climate change is very low, and this is problematic for the mainstreaming of climate change adaptation measures. Activities implemented under this output aim to increase public knowledge of climate change impact and ecosystem management-based adaptation measures designed to increase resilience. This will be achieved through a public awareness campaign developed for appropriate media (particularly radio, due to its high impact in a population with relatively low literacy rates). Simple, accessible lessons and teaching aids will be developed for primary education within the priority provinces, in order to assess the efficacy of the approach. If successful, these climate change lessons will be provided to the Ministry of Education and the mainstreaming of climate change education and ecosystem-based adaptation will be facilitated. In addition, a national policy workshop including all relevant stakeholders will be held. This activity will both raise awareness of climate change adaptation amongst relevant stakeholders, and serve as a baseline stakeholder engagement for the development of the climate change policy in Component 2.

The activities to be implemented under Output 4.4 are:

- 4.4.1. Conduct national public awareness campaign on the risks of climate change and potential benefits of adaptation measures.
- 4.4.2. Develop climate impact change and adaptation lessons for integration into school curricula. These lessons will be piloted in the priority project areas to assess the uptake amongst children. In addition to general background knowledge and

understanding of climate change, specific focus will be given to simple activities that can be undertaken at a community level to enhance adaptive capacity.

- 4.4.3. Conduct national policy workshop on climate change adaptation. This workshop will include all relevant stakeholders identified by the Project Steering Committee (PSC), including government agencies, NGOs, community groups and provincial structures. As well as building on knowledge generated through interventions in Outcome 3, this workshop will facilitate the drafting of a national climate change policy (Output 2.3).
- 4.4.4. Disseminate information about climate change and adaptation alternatives based on project experiences and lessons through media components (radio, television, newspapers and pamphlets in local languages).

Output 4.5. Resource mobilisation strategy developed for replication of project lessons and demonstrations in other locations of Afghanistan.

Key to the success of the LDF project will be the mainstreaming of successful ecosystem management-based adaptation approaches. This output will facilitate this by identifying additional locations for rollout using the vulnerability maps prepared in Component 1. It will also make use of the cost-effectiveness and viability assessments undertaken in output 4.1, and local assessment toolkit prepared in Output 2.1 to ensure that appropriate activities are selected for the priority sites. Finally, the output will facilitate the accessing of additional funds for the rollout of activities in other areas by building capacity and facilitating

The activities to be implemented under Output 4.5 are:

- 4.5.1. Carry out training course on strategic planning and proposal writing for relevant agencies
- 4.5.2. Identify additional locations and interventions to achieve long-term adaptation goals. This will be based on the vulnerability maps prepared in Output 1.1, and local assessment will be conducted using the toolkit prepared in Output 2.1. Areas will be identified that allow the replication of successful adaptation strategies from Outcome 3 to be applied to additional identified priority sites.
- 4.5.3. Support development of relevant funding proposals for replication of successful interventions on a large scale and promote within the GIRoA as well as donor organisations

3.3 Intervention logic and key assumptions

183. The selected interventions will: i) strengthen the national capacity to assess, monitor, predict and plan for the effects of climate change on water and livelihoods; and ii) help local populations to adapt to changing climatic conditions through the promotion of sustainable natural resource management and agricultural practices that build climate-resilience. The interventions are developed based on both the NAPA priorities and consultations with national, provincial and district authorities (see Section 5). In addition, the interventions are based on the selection of 'no regret' solutions which will provide benefits at the national and local level even if the effects of climate change are not as severe as currently believed.

184. The project will reduce the vulnerability of both rural and urban populations within the selected areas, and strengthen the institutional capacity and adaptation planning potential to deal with the anticipated effects of climate change to water supplies and livelihoods. This will be achieved through the implementation of a set of urgent measures that will strengthen adaptive capacity through: i) the development of climate change awareness/knowledge; ii) enhancement of agricultural productivity in areas of low and decreasing water availability; and iii) rehabilitation and enhancement of ecosystems. In Outcome 1, the approach for building knowledge on how to manage climate change in the water sector includes: mapping the relationships between relevant government

departments and other institutions; developing plans for managing climate data; conducting training courses on meteorology/EWS/climate modelling; using climate models to forecast weather; mapping vulnerability at a local scale; developing an effective EWS system for the water sector; and preparing policy and technical briefs on the risks of climate change in the water sector. In Outcome 2, climate change risks will be mainstreamed into policies, plans and programmes in the water sector. The approach in this outcome is to: develop a toolkit for relevant national agencies to identify and manage climate change risks; strengthen institutional relationships to manage a functioning data network; training members of the NCCC and staff of relevant national agencies; facilitating strategic meetings between agencies to formulate their integrated approaches to managing climate change risks in the water sector; undertaking dynamic systems modelling to improve the understanding of likely cross-sectoral effects of climate change; proposing changes to relevant policies, plans and strategies to better manage climate change risks; developing an overarching climate change adaptation strategy for Afghanistan. In Outcome 3 the approach is to build capacity in human resources at the local scale by piloting climate-resilient water storage technologies, irrigation technologies, and water harvesting techniques. In addition, degraded landscapes, including drylands and wetlands will be restored using innovative techniques (such as multi-use forests) to improve water and food supplies during droughts. Finally, Outcome 4 will promote the sustainability of these interventions beyond the project period by training communities in the implementation and maintenance of the above concrete, on-the-ground interventions, within the context of watershed management plans at the local level.

185. The project will make use of the “learning by doing” approach, with concurrent research into the viability of different adaptation approaches to ensure that successes and failures are well documented. Climate change science and knowledge will be enhanced through training and research within the project activities. In addition, lessons learned will be shared through workshops, briefing papers and appropriate online portals. The capacity of national partners to facilitate dissemination of climate change adaptation knowledge through the knowledge network by means of various media will be enhanced. As a consequence, institutional capacity for assessing climate risks and providing appropriate adaptation alternatives at district, provincial and national levels will be enhanced. The mainstreaming of knowledge into national institutions will be complemented by the development of local skills to undertake similar adaptation measures in other districts and provinces. This will also ensure the sustainability of project efforts in the long-term.

186. The project interventions are based on a number of key assumptions. Firstly, it is assumed that the security at the project sites could deteriorate. This would restrict movements of UN experts in and out of project sites and act as a deterrent for the involvement of international experts. To mitigate the potential security risk at project sites, the current and future stability of the project sites was considered in the site selection process to assist with project success and longevity. Secondly, it is assumed that extreme weather events could disrupt project activities. As a result, coordination will be sought with disaster relief agencies (e.g. ANDMA) to assist intervention sites impacted by such events. Thirdly, there is a risk of frequent changes to personnel within the project steering committee and management team. It is assumed that by making use of already functioning government structures, continuity within these teams can be adequately maintained to ensure effective management. Fourthly, it is assumed that provincial responses to the NEPA leadership could be generally poor. However, provincial authorities have already been consulted during the PPG phase to ensure their endorsement of the LDCF project. Fifthly, there may be a lack of political support at the project sites, which will be detrimental to the success of interventions. However, it is assumed that community participation will encourage local project ownership to assist with the sustainability of interventions. Furthermore, well-connected regional technical

advisors will contribute towards reducing political interference. Finally, there may be limited technical capacity to implement project interventions. It is therefore assumed that the involvement of key partners for technical oversight and project facilitation, as well as capacity building for project managers and NEPA district officials will assist with the implementation and monitoring of project activities.

3.4 Risk analysis and risk management measures

187. The proposed project has strong support from both national and local government. However, the project does contain significant risks, due to the special nature of Afghanistan at present. In particular, the risk of political instability is very real. Sites have been selected bearing in mind the security risk, and at least one of the areas (Bamyan) has not experienced a security problem since the end of significant hostilities in 2002. Measures detailed below should help to reduce the impact of any such instability. Monitoring of the security risks will be a key task of the IA, and the possibility of extending the project for up to a year in response to a security-induced slowing of potential outputs.

188. Another potential risk to the project is the severe lack of technical expertise within the country. As a result of this general shortcoming, NEPA has requested that UNEP DEPI/PCDMB provide execution assistance. The assignment of permanent PCDMB staff to the Special Adviser (SA) role is anticipated to reduce the impact of this risk. Additional risks and countermeasures are tabulated in Table 4 below.

Table 4: Risk log for the project with proposed mitigation measures.

#	Description of the risk	Potential consequence	Mitigation measures / Management response	Type (Risk category)	Probability & impact (1-5)
1	Deterioration of security situation in project sites.	<ul style="list-style-type: none"> Increased restrictions on movements for UN experts. Reduced availability of international experts for short-term contracts. Higher costs towards increasing security measures for the project personnel Potential increase in the time taken to implement project 	<ul style="list-style-type: none"> Preference has been given in site selection stable sites, and communities with a good working relationship with UNEP, NEPA and implementing organisations. Strong participatory stakeholder consultations have been undertaken to ensure reasonable expectations and to clarify roles/responsibilities. Continual engagement with local political structures (shuras, community leaders, CDCs) by the Executing Agency will enhance security and community ownership. Local authorities and community development organisations are given more project responsibility. There will be a stronger focus on permanent experts, NEPA national staff structures and permanent UNEP DEPI/PCDMB staff, using short-term experts to facilitate crucial undertakings, and to assist in the building of local capacity.. Additional costs are requested to cover costs incurred by the need to increase security measures. A 10% increase of the total budget is requested with 68% going towards 	Political	P=4 I=4

#	Description of the risk	Potential consequence	Mitigation measures / Management response	Type (Risk category)	Probability & impact (1-5)
			<p>direct security costs, with the remainder being used to address inflated costs associated with mitigation of this risk.</p> <ul style="list-style-type: none"> It is possible to extend the project duration in order to allow project activities to reach fruition despite political instability. 		
2	Extreme climate events such as floods and droughts could disrupt project activities and/or damage ecosystems and infrastructure.	<ul style="list-style-type: none"> Reduced effectiveness of project interventions. Potential damage to baseline project interventions. 	<ul style="list-style-type: none"> Coordination will be undertaken with partners such as ANDMA for disaster response in order to ensure that disaster relief interventions are also directed towards demonstration sites impacted by extreme climatic events. Appropriate species will be used for project interventions in order to minimise the potential impacts in the medium and long-term. The piloting of an EWS for the project's pilot sites should assist in reducing the impacts of extreme climatic events. Where damage occurs before ecosystem management adaptation approaches can reduce the impacts of extreme events, supplementary infrastructural approaches and planting will be undertaken. After suitable review, the project implementation period could be extended in order to facilitate the establishment of ecosystem management adaptation measures. 	Environmental	P=2 I=4
3	Frequent changes in membership of the steering committee and project management team (Staff turnover).	<ul style="list-style-type: none"> Changes in project-related government priorities. Poor institutional memory. Poor project coordination. 	<ul style="list-style-type: none"> Deputies and alternative representatives within the institutions will be recommended at inception to ensure that sufficient membership continuity is available. PSC will make use of established government structures to capitalise on functioning systems. 	Organisational	P=3 I=2
4	Poor provincial responses to leadership role from NEPA.	<ul style="list-style-type: none"> Reduced project buy-in from key provincial stakeholders. Difficulty in coordinating local project activities. 	<ul style="list-style-type: none"> Provincial authorities have been individually consulted during PPG phase, and have endorsed the LDCF project. The PSC will engage with relevant provincial authorities throughout the duration of the project. 	Organisational	P=1, I=2
5	Lack of political support of project	<ul style="list-style-type: none"> Difficulty for NEPA staff and project management to 	<ul style="list-style-type: none"> Regional technical advisors with good local connections will be assigned to ensure that political interference is minimised. 	Political	P=2 I=2

#	Description of the risk	Potential consequence	Mitigation measures / Management response	Type (Risk category)	Probability & impact (1-5)
	implementation at project sites.	<ul style="list-style-type: none"> reach area. Reduced project management effectiveness. Possible prevention of local communities from undertaking interventions. 	<ul style="list-style-type: none"> Community participation will be maintained throughout the project duration to promote local project ownership. On the ground coordination will be undertaken in conjunction with local political structures to facilitate political buy-in. Comprehensive stakeholder engagement has been undertaken, and will be maintained throughout the project implementation. 		
6	Limited technical capacity to implement the project, particularly at the demonstration sites, or through failure to obtain a sufficiently qualified and dynamic project coordinator.	<ul style="list-style-type: none"> Local implementation hampered, resulting in project delays. Potential wastage of project investments due to poor implementation. Challenges in monitoring project implementation. Reduced project management effectiveness. 	<ul style="list-style-type: none"> Key partners have been identified or are being identified in project sites to facilitate project implementation. Capacity will be built in key NEPA district officials to implement and monitor project activities. Regular technical oversight missions will be undertaken by UNEP DEPI/PCDMB staff. On-the-job training will be provided to project manager to enhance management and implementation capacity. Appropriate incentives will be provided to ensure the securing of the best local manager. Permanent UNEP DEPI/PCDMB staff will be assigned to the project to provide technical and operational assistance 	Technical	P=4; I=4

189. This risk log will be updated annually by the National Project Coordinator (NPC) in cooperation with the SA (see Section 4 for further details about roles). The status of existing risks will be re-assessed, and emerging risks identified by the PSC that might affect project implementation will be included. Where necessitated by changing risk profiles, additional mitigation measures may have to be included during the annual review process.

3.5 Consistency with national priorities or plans

190. The ANDS (2008-2013) is the principle guiding document for Afghanistan's development over this period and into the future, and it clearly articulates the GIROA's national goals, namely: i) security; ii) governance, rule of law and human rights; and iii) economic and social development. The LDCF project interventions promote sustainable development and components of the interventions will assist the national government to achieve all three of the goals. The United Nations Development Assistance Framework (UNDAF) for Afghanistan has been structured in accordance with the ANDS, and consequently the LDCF project is consistent with the UNDAF objectives. The UNEP DEPI/PCDMB country representative sits on the UN Country Team (UNCT) and is tasked with ensuring that the UNCT is informed about the progress of the LDCF project.

191. Amongst the top ANDS priorities are water management and agriculture, which are particularly threatened under conditions of climate change. The focus on agriculture led to

the development of a new National Agriculture Development Framework (NADF) by MAIL. The NADF is based on a core principle of natural resource management, upon which it bases the development strategy for agricultural production and productivity, with economic regeneration at the top of the “agriculture triangle”. Consequently, natural resource management is presented as a key national priority under the ANDS.

192. Section V of the ANDS addresses water availability and associated issues as a key national priority. This was reiterated through the NAPA process, from which the two priority projects are both related to water availability. Target 10 of the MDGs is to halve by 2020 the proportion of people without sustainable access to safe drinking water and to ensure environmental sustainability. Consequently, the LDCF project has a strong focus on ensuring increased water supply despite the predicted reduction in the availability of water throughout Afghanistan under conditions of climate change.

193. In addition to the water and agriculture sectors, Afghanistan has been focussing on strengthening environmental management within the country. It is signatory to several significant MEAs (CITES, UNFCCC, UNCBD and UNCCD), and has either developed or is in the process of developing strategy and policy documents governing the maintenance of forests, rangeland, biodiversity and water. The LDCF project is designed to strengthen the environmental management framework by capacitating both the mandated agencies (NEPA and, to a lesser extent, MAIL) and communities to address environmental issues arising in conjunction with changing climate.

194. The national development agenda also includes a significant component on addressing shortcomings of both transport and energy infrastructure in order to promote market access and social uplift in all areas. The LDCF project will assist in the achievement of these goals by protecting these infrastructural improvements both within the identified priority sites, and in downstream areas, by reducing the impacts of climate change-induced extreme weather, flooding, erosion and droughts.

195. The LDCF project will assist in the implementation of the SNAP by facilitating the development of a national climate EWS, and by building capacity within the mandated disaster risk reduction agency, ANDMA.

196. The National Action Plan for Women’s Affairs (NAPWA) specifies a growing role and engagement of women in Afghanistan’s national affairs. This role is further reflected in the ANDS, which specifies that women should be engaged and promoted through education, training, economic empowerment and social uplift. The gender-disaggregation of indicators in the LDCF project and the specific focus on ensuring the inclusion of women in project activities will assist in addressing the gender focus of national development plans.

197. Finally, the LDCF will ensure that the gains in the above-mentioned fields are capitalised upon by establishing partnerships with donor organisations and regional networks to ensure the future integration of climate change-related issues into on-going project activities throughout Afghanistan. These networks will also facilitate the transfer of information between partners to enable a more focussed approach to addressing climate change within the region.

3.6 Additional cost reasoning

198. Climate change-induced damage to infrastructure, livelihoods and systems in Afghanistan are likely to increase over time. The project will contribute to the reduction of these impacts by implementing appropriate adaptation activities. These activities will ensure that the effects of the baseline projects are sustained and enhanced despite the effects of climate change. It is highly unlikely that the communities selected would be able to adapt unassisted to the threats posed to their livelihoods by increased climate

variability. EWS and risk reduction measures implemented within the identified priority sites will contribute towards improving the local communities' strategies for coping with climate variability, and will thereby enhance their resilience. In addition, the interventions selected will allow communities to maximise the use of potentially beneficial impacts of climate change where this occurs. Furthermore, the project will build capacity of the public and within government structures to reduce the country's vulnerability to climate change impacts.

199. Specifically, the project will strengthen national policy, regulatory and institutional structures at the national level for predicting the effects and managing climate change adaptation, and provide scientific tools for proper advance planning and response (Outcomes 1 and 2). In addition, the project will pilot measures to improve the resilience of communities, productive systems and ecosystems in rural and peri-urban areas to conditions of climate change (Outcome 3). Finally, the project will ensure that knowledge of the best practices derived from these demonstrations is disseminated to relevant communities, government officials and local and international partner organisations (Outcome 4). These aims will be achieved through the following outcomes:

Component 1: Climate change risk assessment, monitoring and forecasting, and information.

200. At present, Afghanistan has limited capacity to gather climate data, to interpret and predict likely outcomes, and to assess the vulnerability of specific places and economic sectors to the negative effects of climate change. Whilst Global Circulation Model (GCM) outputs are available for the region and rough maps of current vulnerability have been prepared by agencies outside the government, there are no suitable structures or mechanisms within the Afghanistan government to capitalise on these resources. This means that the majority of national development policy documents do not take cognisance of the potential impacts of climate change, rendering the country highly vulnerable to its negative impacts.

201. The LDCF project will dedicate resources (US\$ 929,379 of LDCF funding, US\$ 1,200,000 of co-financing) to increase the national capacity and knowledge base to ensure that Afghanistan can monitor, assess and respond appropriately to climate change risks through the development of institutional capacity within national-level institutions and departments. This will be done through a process of: i) undertaking institutional gap analyses and needs assessments to identify capacity and technical shortfalls; ii) developing a strategic data-gathering and data-sharing network for exchange of climate information between all relevant partners; iii) developing strategic regional and international partnerships to facilitate capacity development and information exchange; iv) identifying appropriate tools and models for developing climate change adaptation planning products; v) implementing training courses in international best-practice methodologies for climate change modelling, seasonal forecasting and hydrological modelling; and vi) assisting in the development of climate change vulnerability maps. Although there is currently limited technical infrastructure for carrying out these activities, the development of strong partnerships with baseline projects that are enhancing such infrastructure will promote development and purchase of appropriate systems to enable the development of climate change products and knowledge. For example, infrastructure such as the basic rain gauges installed by the USGS AgroMet programme provide a basis upon which additional complementary meteorological infrastructure can be built. Similarly, AMA's six remaining functioning meteorological stations, which are unable to store computerised records, highlight the need for the additional infrastructure that will be provided by the LDCF project.

202. In addition, the LDCF project will build capacity for national government agencies to successfully undertake climate change risk assessments for the country. It will also build

upon the RAMA baseline training and facilities to facilitate the establishment of a climate change EWS. This facilitation will produce standard operating procedures and assist in the delineation of appropriate risk-reporting structures by trialling the system in the four identified priority provinces. The LDCF will also produce policy briefs to facilitate the integration of the lessons learned from the project activities into national policy. Finally, the UNDP's Comprehensive Disaster Risk Reduction Programme, important in the establishment and running of ANDMA, provides an effective foundation for the LDCF project. The establishment of the National Emergency Operations Centre and further provincial emergency centres, for example, will provide the necessary infrastructure for effective EWS to be implemented under the LDCF project.

203. In the absence of the project interventions, Afghanistan will continue to lack the capacity to gather and process relevant climate data, and consequently climate change adaptation knowledge and tools will not be developed. The lack of national capacity to identify and implement adaptation measures will prevent the inclusion of climate change risks into national development policy, and the lack of proper climate monitoring will limit the ability of both national and international adaptation efforts.

Component 2: Climate change adaptation and response strategies.

204. Presently, climate change risks are poorly understood in Afghanistan, and are not integrated into relevant national policies, plans and programmes. Furthermore, the multi-disciplinary coordination necessary for appropriate climate change adaptation is lacking between national government line ministries and agencies. Although the NCCC was established in 2009, it does not yet meet regularly, and has had limited success in integrating climate change science into national policies.

205. The LDCF project will allocate resources (US\$ 719,250 of LDCF funding, US\$ 1,920,000 of co-financing) towards the development of an appropriate multi-disciplinary national climate change adaptation policy. To ensure the effectiveness of this policy, capacity will be built in relevant government bodies (NEPA, MAIL, MEW and MRRD) to promote integration of climate change adaptation policy into all relevant sectors of government. Additionally, institutional and technical training will be provided on the implementation of climate proofed sectoral plans within the overarching climate change adaptation policy. Outcome 2 will also reinforce the functioning of the NCCC. The NCCC is a vehicle for mainstreaming climate change adaptation into national policy, however, this is currently not taking place effectively due to the limited capacity of the committee. An effective, formal coordinating committee is essential to ensure synergies in the multi-sectoral approach, and ultimately successful implementation of the policy. Formalisation of a coordinating body through the LDCF project will be simplified by the current existence of committees such as the NCCC.

206. In the absence of the LDCF project interventions, the lack of an overarching climate change adaptation policy will persist, as will the lack of coordination between national government line ministries and agencies regarding climate change activities. Additionally, capacity in relevant government bodies to understand and integrate climate adaptation strategies into multi-sectoral plans will remain limited.

Component 3: Practices for water resources and watershed management piloted and tested in selected sites.

207. At present, communities, productive systems and ecosystems in and around rural and peri-urban areas are highly vulnerable to changes in timing and intensity of rainfall and other climate change-induced events. Reliance on ecosystem services combined with widespread ecosystem degradation means that adaptive capacity is low throughout Afghanistan. Poverty further exacerbates this low adaptive capacity. There have been some recent multilateral investments into national infrastructure, including large scale

irrigation programmes. However, these programmes do not take the predicted impacts of climate change into account, and generally lack an integration of relevant ecosystem management-based adaptation principles. This highlights the lack of planning and integration of climate change risks into national policies. Such investments, however, provide a sound foundation for the additional work of the LDCF project.

208. The project will allocate resources (US\$ 2,498,455 of LDCF funding, US\$ 8,920,000 of co-financing) to address climate change-induced risks to communities, productive systems and ecosystems by trialling different ecosystem and water management approaches to adaptation. These include: i) efficient water infrastructure and irrigation technologies to build climate resilience in the irrigated agriculture sector; ii) drought-resilient crops, water harvesting and catchment restoration measures to build climate resilience in the dryland agricultural sector; and iii) capacity building in local communities to undertake integrated watershed management to build climate resilience in rural and peri-urban communities. Four priority provinces identified as being particularly vulnerable to the impacts of climate change will be targeted in this component. Adaptation interventions that promote sustainable water supplies for domestic and agricultural use will be piloted in rangelands, mountains, wetlands and peri-urban subsistence farmland. For example, check dams and the use of low-water-usage irrigation systems in Badakhshan Province will reduce water use, making communities and water management more resilient in times of drought. At present, fields are flood-irrigated by diversion of rivers, which is a highly inefficient use of water. In Balkh Province, drought-resilient crop species and cultivars will be promoted which will increase the resilience of agricultural productivity and complement the efficient water management interventions. Additional low cost and high-impact simple water management interventions will be trialled within local communities in order to establish cost-effective adaptation options under drought and low-water conditions. In Bamyan Province, integrated watershed management plans will be developed for the restoration of degraded aquatic zones, including restoration of degraded watershed areas with multiple-use indigenous species where appropriate. In Daykundi Province, degraded wetlands, riverbanks and catchment areas will be restored through reforestation, and low-cost water barriers and catchment structures will be constructed. These interventions will enhance water catchment areas and reduce the incidence of floods in peri-urban areas. This will build further climate resilience at intervention sites and further downstream.

209. It is expected that the interest and willingness of the local communities to participate actively in the adaptation measures will be further ensured if they are able to secure a better livelihood as part of the project's adaptation measures. The outcome's demonstration component is expected to provide significant and tangible benefits for communities, which is likely to result in replication in other areas experiencing similar impacts.

210. In the absence of the project interventions, the adaptive capacity of communities, productive systems and ecosystems will remain low. The capacity of provincial- and district-level stakeholders to plan for climate change adaptation will also remain low, and the knowledge of suitable approaches to climate change adaptation at a local level will not be developed. Levels of poverty and food insecurity will continue to increase as current community coping strategies are largely inappropriate, particularly given the predicted impacts of climate change.

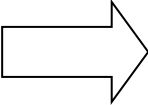
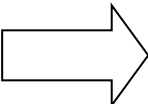
Component 4: Adaptive learning and dissemination of lessons learned and best practices.

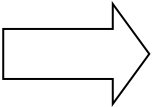
211. At present, the lack of knowledge of techniques and methods to cope with the impacts of climate change is limiting the ability of the country to build climate resilience, particularly within rural communities.

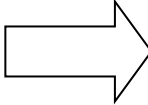
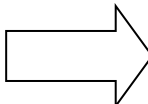
212. To improve this situation, the project will dedicate resources (US\$ 707,516 LDCF funding, US\$ 1,300,000 co-financing) to raising public awareness through national campaigns targeting the public (through radio, television, newspapers and pamphlets in local languages) and schools, including rural areas (through integration of climate change impact and adaptation lessons into school curricula). In addition to providing general background knowledge and understanding of climate change, specific focus will be given to simple activities that can be undertaken at a community level to enhance adaptive capacity. To raise the awareness of relevant government sectors (for example, of officials at MAIL, MRRD, MEW and MUD), training tools for adaptation and flood/drought prevention will be incorporated into public service training programmes in Afghanistan.
213. Activities in Component 4 will also focus on the capture and dissemination of project lessons learned to relevant networks through distribution tools (such as GAN, Climate and Development Knowledge Network, Adaptation Learning Mechanism, WeAdapt), as well as regionally with bordering nations (Iran, Turkmenistan, Tajikistan, Uzbekistan, China and Pakistan). This will facilitate adaptive learning within Afghanistan and regionally, and strengthen national and international knowledge exchange structures.
214. Research programmes are already being conducted to identify best practices for agriculture under dryland conditions in Afghanistan - for example, through MAIL and ICARDA. The agricultural approaches identified by these research bodies, however, have not been examined in the context of climate change. The LDCF project will therefore build upon this research and additionally disseminate the lessons learnt to allow for the adoption of identified appropriate practices.
215. In the absence of the project interventions, knowledge of effective adaptation to the impacts of climate change will remain limited, to the detriment of highly vulnerable communities, productive systems and ecosystems in and around rural and peri-urban areas. Additionally, the benefits of sharing lessons learned regionally and internationally will not be realised.

Table 5 below depicts the baseline/business-as-usual situation versus the adaptation scenario.

Table 5: Comparison of the business-as-usual situation and alternative adaptation scenarios.

	Business-As-Usual		Adaptation alternative scenario
Problem Description	<p>Afghanistan has experienced an extended period of instability and war, which has hindered development. The majority of the population is engaged in rain-fed rural agriculture or pastoral herding, which makes them extremely vulnerable to drought, floods and loss of soils. Unsustainable use and the resultant degradation of fragile or marginal lands have left rural communities particularly vulnerable to the impacts adverse climatic conditions. The projected increase in droughts and extreme weather events as a result of climate change is likely to decrease agricultural productivity, impact negatively on the livelihoods of poor individuals, and further degrade productive and marginal ecosystems within Afghanistan.</p> <p>Baseline development is being undertaken throughout the country, as the international community is currently providing significant investment in infrastructure and priority development projects identified by the GIRoA. However, such development does not take into account the potential effects of climate change, and is therefore at risk of significant setbacks in the medium- and long-term. Two large development programmes currently being undertaken in Afghanistan are the NABDP and the NSP, which will serve as baseline co-financing for the project.</p>		<p>Climate change is predicted to increase the frequency and intensity of drought periods, and reduce water availability overall in Afghanistan once glaciers have receded. In addition, the incidence of extreme weather conditions is anticipated to increase. These climate effects will reduce agricultural productivity, damage infrastructure and reduce the long-term effectiveness of current development initiatives. To address this problem, the IA is facilitating the implementation of an adaptation project in Afghanistan, based on priorities identified during the NAPA process.</p>
Project outcomes	<p>Outcome 1</p> <ul style="list-style-type: none"> • Institutional capacity to undertake climate change adaptation planning is severely limited. • Infrastructure to measure, collate and interpret meteorological, hydrological and climatological data is limited. In addition, there is still poor coordination and information exchange between national partners. • National structures have limited technical capacity for developing climate vulnerability assessments and forecasting of climate change-induced risks to water and agriculture. Some training has been provided to national agencies in terms of reporting to such bodies as the UNFCCC, but no training in the forecasting, analysis and response to climate risks has been 		<p>The LDCF project will contribute to improving on the baseline situation and to addressing identified barriers to the preferred solutions, particularly in relation to institutional capacity for climate change adaption, by <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Increasing the national capacity and knowledge base to ensure that Afghanistan can monitor, assess and respond appropriately to climate change risks through the development of institutional capacity within national-level institutions and departments. This will be done through a process of: i) undertaking institutional gap analyses and needs assessments to identify capacity and technical shortfalls; ii) developing a strategic data-gathering and data-sharing network for exchange of climate information

	Business-As-Usual		Adaptation alternative scenario
	<p>conducted.</p> <ul style="list-style-type: none"> No national Early Warning System (EWS) has been established to reduce the impacts of climate change-induced emergencies. National structures are limited to responsive action. At present, there is no capacity to undertake pre-emptive measures to reduce risk and prevent loss of life from climate change-induced hazards. 		<p>between all relevant partners; iii) developing strategic regional and international partnerships to facilitate capacity development and information exchange; iv); identifying appropriate tools and models for developing climate change adaptation planning products; v) implementing training courses in international best-practice methodologies for climate change modelling, seasonal forecasting and hydrological modelling; and vi) assisting in the development of climate change vulnerability maps.</p> <ul style="list-style-type: none"> Developing strong partnerships with baseline projects (RAMA and AgroMet) that are enhancing technical infrastructure and promoting the development and purchase of appropriate systems to increase climate change adaptation capacity. Building capacity for national government agencies to successfully undertake climate change risk assessments for the country. Building upon the RAMA baseline training and facilities to facilitate the establishment of a climate change EWS. This facilitation will produce standard operating procedures and assist in the delineation of appropriate risk-reporting structures by trialling the system in the four identified priority provinces. Producing policy briefs to facilitate the integration of the lessons learned from the project activities into national policy.
	<p>Outcome 2</p> <ul style="list-style-type: none"> Knowledge of climate is limited within both national structures and the general public. Limited integration of climate change adaptation or recognition of the potential climate change impacts into the extensive development projects on-going in Afghanistan. No significant mention of climate change in national policy and strategy. Limited capacity to integrate available climate change 		<p>The LDCF project will contribute to improving on the baseline situation and to addressing identified barriers to the preferred solutions, particularly in relation to integration of climate into policies and strategies, by <i>inter alia</i>:</p> <ul style="list-style-type: none"> Allocation of resources towards the development of an appropriate multi-disciplinary national climate change policy. Building of capacity in relevant government bodies (NEPA, MAIL, MEW and MRRD) to promote integration of climate change policy into all relevant sectors of

	Business-As-Usual		Adaptation alternative scenario
	<p>knowledge into national policies and strategies.</p>		<p>government.</p> <ul style="list-style-type: none"> • Providing institutional and technical training on the implementation of climate proofed sectoral plans within the overarching climate change policy. • Reinforcing the functioning of the NCCC to ensure synergies in the multi-sectoral approach, and ultimately successful implementation of the policy.
	<p>Outcome 3</p> <ul style="list-style-type: none"> • Limited adaptive capacity throughout rural and urban Afghanistan, largely as a result of the very high poverty levels and lack of adaptive alternatives. • Access to water for agriculture is restricted to lands close to water bodies and to areas where rainfall is sufficient. • High vulnerability of agriculture and rural livelihoods to climate change events such as a slight shift in timing and intensity of rainfall, intense dust storms (in lowland areas) or a climate change-induced reduction in the availability of other ecosystem resources. • Viability of current improvements in rural infrastructure such as irrigation programmes and MHP installations is reduced by increased flood intensity and siltation rates, resulting in losses of development gains under conditions of climate changes. 		<p>The LDCF project will contribute to improving on the baseline situation and to addressing identified barriers to the preferred solutions, particularly in relation to reducing vulnerability and increasing environmental resilience by improving water-use efficiency , by <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Trialling of different ecosystem and water management approaches to adaptation in rangelands areas, mountains, wetlands and peri-urban subsistence farmland in four priority provinces. These include: i) efficient water management technologies to adapt to intensive and prolonged droughts; ii) agricultural management practices adapted to drought and designed to reduce water needs; and iii) watershed management adapted to intensive drought and increased flooding. • The creation and institutional strengthening of water management associations, as well as provision of the required training, for more effective integrated water resources management.
	<p>Outcome 4</p> <ul style="list-style-type: none"> • Extremely limited knowledge of techniques and methods for building resilience to climate change risks. • No indication of the suitability of current agricultural best practices for agriculture. • No research has been conducted into methods to enhance the capacity of the country and rural communities to adapt to climate change. 		<p>The LDCF project will contribute to improving on the baseline situation and to addressing identified barriers to the preferred solutions, particularly in relation to increasing knowledge of good practices on increasing resilience to CC – to – water related risks, by <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Raising public awareness through national campaigns targeting the general public (through radio, television, newspapers and pamphlets in local languages) and schools, including rural areas (integration of climate change impact and adaptation lessons into school curricula). In addition to providing general background knowledge and understanding of climate change, specific

	Business-As-Usual		Adaptation alternative scenario
			<p>focus will be given to simple activities that can be undertaken at a community level to enhance adaptive capacity.</p> <ul style="list-style-type: none"> • Training tools for adaptation and flood/drought prevention will be incorporated into public service training programmes to raise the awareness of relevant government sectors (for example, of officials at MAIL, MRRD, MEW and MUD). • Capturing and disseminating of project lessons learned to relevant networks through distribution tools (such as GAN, APAN, Climate and Development Knowledge Network, Adaptation Learning Mechanism, WeAdapt), as well as regionally with bordering nations (Iran, Turkmenistan, Tajikistan, Uzbekistan, China¹²² and Pakistan).
Cost	Business-As-Usual Development Cost		Additional Adaptation Cost
Financed By	NABDP, NSP, RAMA, WMO		LDCF

¹²²A good potential partner for information exchange in China is the South-South Cooperation Programme on Climate Change. This joint Chinese government and UNEP programme has been developed to facilitate capacity building and technology transfer on environmental issues in developing and least-developed countries.

3.7 Sustainability

216. To ensure the sustainability of the project interventions beyond the project lifetime, ownership of the project by government structures (primarily NEPA, AMA, ANDMA and MAIL) is of paramount importance. Consequently, government agencies and bodies are integral to the project implementation, and project capacity building activities will focus on those agencies that coordinate and/or support the implementation of the project. Importantly, the project was developed in close collaboration with government leaders at the national-, provincial- and district-level within the four relevant provinces, as well as national-level stakeholders. Communities in the priority project sites have been consulted and engagement will continue during the LDCF project to ensure ownership of the project's activities. Considerable attention will also be paid to both traditional capacity building and a more innovative 'learn-by-doing' approach. To this end, human capital will be built within the government itself at different levels, with a focus on the provincial level. This training will include courses/toolkits on: i) data exchange; ii) climate change modelling, seasonal forecasting and hydrological modelling for flood prevention; iii) EWS; iv) climate change policy; v) implementation of climate changes strategies and climate-proof sectoral plans; vi) IWM and restoration ecology; vii) adaptation for flood and drought prevention; and viii) strategic planning for development of funding proposals for replication for successful adaptation interventions. Community training at the local level will be undertaken to raise climate change and adaptation awareness, and more specifically, to train the communities on the pilot interventions implemented through outcome 3. As a result of these capacity building exercises, the capacity of government staff working within the project to develop and implement effective adaptation measures will be significantly strengthened, which will be beneficial for future projects within Afghanistan. The National Adaptation strategy to be developed under the LDCF project will help towards sustaining the project interventions and increasing its impact in the future. It will also provide for integration of climate change adaptation priorities into relevant national planning and policy documents, promoting a "climate-proofing" approach to development.
217. To further strengthen in-country capacity to facilitate the development and adoption of effective adaptation measures across Afghanistan, the LDCF project will employ a strategy to incrementally reduce the level of international technical assistance provided to the project. Instead, emphasis will be placed on capacitating national consultants. This, too, will contribute to the sustainability of project interventions and national ownership of the project outcomes. A higher level of responsibility will be therefore transferred to the NTAs and the technical/administration team under him/her.
218. The project will benefit greatly from UNEP's previous experiences in Afghanistan, with particular emphasis on previous CBNRM programmes. In this way, the project will follow successful methods and link with national structures (through NEPA), thereby avoiding pitfalls experienced by previous projects/programmes. Additionally, the project will closely follow the NSP and NABDP, through which CDCs and DDAs are established at community- and district-level, respectively. This is likely to ensure their sustainability beyond the project lifetime, as the LDCF project will be aligned with CDC community development plans, and capacity will be strengthened at a local level to ensure that adaptation measures are operational and maintained after the completion of the project. Training undertaken as part of the project activities will ensure the improvement of capacity at all levels as well as development of technical capacity where required. Additionally, as a result of the expected success and tangible benefits of the adaptation measures, it is anticipated that activities will remain successful beyond the project lifetime and may potentially be upscaled to neighbouring communities/provinces. The inclusion of climate change considerations into national policy and local-level development plans will create an enabling environment for effective adaptation and thus contribute to the

sustainability of project interventions as well the project's efforts to improve institutional coordination related to climate change matters.

3.8 Replicability

219. The project is being piloted in four provinces out of 34 in Afghanistan, and is undertaking several different approaches to promoting climate change resilience within the different ecosystems and areas. There is therefore considerable potential for replication throughout the country. To facilitate the effective replication of project activities, the lessons learned during the project execution will be disseminated nationally through several workshops at provincial and national levels. Local-level and national stakeholders will be involved in project implementation and provided with training, to enable them to replicate those activities that provide tangible benefits in additional sites. Furthermore, the lessons learned will be disseminated through a project-specific website and through the GAN, APAN, Climate and Development Knowledge Network, Adaptation Learning Mechanism, and WeAdapt websites.

220. The close involvement of government institutions and departments in the project's development and implementation indicates considerable potential for future incorporation of the project's approaches into on-going planning and strategies. Additionally, it is expected that the strengthening of capacities among key government stakeholders will enable continued mainstreaming of climate considerations into sectoral planning and decision-making.

221. Furthermore, the extensive training and capacity building of local communities and technical staff regarding adaptation measures will ensure that future endeavours within Afghanistan are climate-resilient as demonstrated in the adaptation measures. In so doing, project interventions will be ensured into the future and are more likely to be replicated and/or upscaled. This will be facilitated by the analysis of the effectiveness of adaptation interventions undertaken through the LDCF project, and the development of handbooks for relevant activities.

222. In addition, the development of a national adaptation strategy as one of the outputs of the project will facilitate the integration of climate change adaptation into relevant sectors of government planning. This will ensure that successful ecosystem management-based adaptation activities will be integrated into national development.

3.9 Public awareness, communications and mainstreaming strategy

223. Public awareness of climate change in Afghanistan is generally very low. Poor education and national communication structures mean that dissemination of information in Afghanistan is generally poor. Raising awareness of the threats of climate change to water and other sectors is a central component of the LDCF project. This will be undertaken through Output 4.4 (page 66) at a local and national level through a public awareness campaign on the risks of climate change and potential benefits of adaptation measures. Lessons learned and project products will be distributed through all available media avenues, including local television and radio stations as well as newspapers and pamphlets in local languages. The campaign will focus on low-cost, no-regret solutions that are easy for low-income groups to implement independently to enhance adaptive capacity. Additionally, climate impact change and adaptation lessons will be integrated into school curricula and lessons developed will be piloted in schools the priority project areas to assess the uptake amongst children.

224. Activities in Output 4.2 (page 65) will establish long-term adaptation knowledge exchange structures regionally with bordering nations that are likely to experience similar climate change impacts (i.e. Iran, Turkmenistan, Tajikistan, Uzbekistan, China and Pakistan). Both existing (such as RIMES and ICIMOD) and new structures will be

investigated to ensure all pertinent information is exchanged. A project specific website will be developed through Output 4.1 (page 65) to allow relevant project and regional partners and stakeholders to interact and provide input, reducing the overhead involved in communication because travel within and bordering Afghanistan is both challenging and dangerous. In addition, project lessons will be disseminated to relevant networks through distribution tools such as GAN, APAN, Climate and Development Knowledge Network, Adaptation Learning Mechanism and WeAdapt. This will ensure that awareness is raised and knowledge is communicated national, regional and international.

225. Capacity will be built at the national level to facilitate the mainstreaming of the LDCF project activities into relevant policies and national development plans. Policy makers in relevant sectors of government will be trained in Output 1.3 (page 55) using policy and technical briefs prepared to highlight the risks of climate change. A toolkit for mainstreaming adaptation responses into sectoral policies will be developed through Output 2.1 (page 55). This will facilitate engagement with private sector and public sector partners to ensure long-term sustainability of the LDCF project activities. The integration of climate change into policies for all relevant sectors will be promoted through Output 2.3 (page 56). Activities will include undertaking a gap analysis of national development plans and policies to determine the extent to which climate change risks are included, and developing an overarching climate change policy for Afghanistan. To support the implementation of this policy and development of climate-proofed sectoral plans, capacity will be built in relevant government bodies (such as NEPA, MAIL, MEW and MRRD) through Output 2.4 (page 57). Finally, training tools will be developed and incorporated into national public service training programmes through Output 4.3 (page 66). This will entail the training of public service trainers in the necessary tools, and thereby enabling the training of MAIL, MRRD, MEW and MUD officials in flood and drought prevention adaptation techniques. Training workshops will be undertaken in conjunction with local partner organisations to highlight the effectiveness of sustainable resource management practices to reduce the impacts of climate change.

226. All relevant groups will be engaged in the implementation of adaptation measures, in keeping with the participatory approach of the project. This “learning-by-doing” approach will ensure ownership of the project by local groups, and will foster an awareness of the pertinent issues regarding adaptation to climate change. The project’s institutional arrangements are situated within government institutional structures, which will facilitate the regular interaction and coordination of the project with government ministries. Additional stakeholder interaction will be undertaken as detailed in Section 5.

3.10 Environmental and social safeguards

227. The proposed adaptation measures to be undertaken by the LDCF project anticipated to have significant positive environmental impacts. The integrated adaptation approach, combining enhanced ecosystem resilience and improved community welfare under climate change conditions will ensure that ecosystem services within the selected priority sites are improved despite changing climatic conditions. The principal focus on improving degraded ecosystems in conjunction with improved community and district management capacity will result in reduced erosion, more regular water flow, enhanced wood- and non-wood ecosystem products, and improved agricultural capacity in vulnerable areas. As such, these can be considered ‘no regrets’ measures, since even where climate change effects are not as severe as anticipated, the project activities will improve upon the baseline conditions.

228. The UNEP checklist for Environmental and Social Safeguards has been completed (see Appendix 19), and it reflects the positive nature of the environmental and social impacts of the project. This checklist will be reviewed annually by the NPC in conjunction with the UNEP Task Manager. All activities implemented by the LDCF project are

designed to improve environmental conditions in the short- to long-term. Consequently, none of the currently identified activities and areas trigger strategic environmental assessments (SEAs) or environmental impact assessments (EIAs). Nevertheless, further information from the baseline assessment to be conducted during the inception phase may require such assessments. Should this be the case, assessments will be undertaken to verify that no adverse environmental effects are generated by the LDCF project, and mitigation activities will be undertaken to limit any such negative social or environmental impact.

229. The LDCF project will contribute to national development priorities identified within the ANDS, ensuring socio-economic improvement for beneficiaries of the project activities. In addition, communities within the demonstration sites will be consulted throughout the project implementation, and will be involved in the development of adaptation measures to ensure project ownership. Through this consultation, the LDCF project will ensure the longevity of project interventions, as well as the generation of social benefits with respect to personal and community empowerment.

230. Gender equity is an important aspect of the project, and will be integrated into all the project's activities at a local, district, provincial and national level. This is in line with the gender priority of the ANDS, which aims to promote gender-sensitive mainstreaming and development planning for all projects. The NAPWA stipulates a gender-based affirmative action approach, and the Department of Women's Affairs (DOWA) will be actively involved in the provincial-level planning for project implementation. In Afghanistan, women traditionally have extremely limited decision-making capacity with respect to issues related to climate change. They also tend to have less formal education and consequently have reduced knowledge of potential adaptation activities. The project will attempt to integrate and develop gender-based groups into community-based activities wherever possible, whilst being careful not to infringe upon strongly held cultural beliefs and roles. Project interventions at a local level will explicitly solicit women's perspectives and ensure their representation in decisions affecting their livelihood. At least 30% of project participants will be women. Project monitoring will explicitly include gender criteria in order to track the progress of the gender integration. In addition, all ethnic and religious groups within the communities will be encouraged to participate, especially with regard to awareness-raising and capacity-building activities.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

231. The LDCF project will be implemented over a four-year period. Following the CEO endorsement, the LDCF project will start shortly after internalization, at which point the hiring process for project staff will begin.

232. UNEP will be the Implementing Agency (IA) for the LDCF project and will oversee the project and provide technical assistance (see details regarding UNEP's comparative advantage in Appendix 20). UNEP, as the GEF Implementing Agency and through the Task Manager (TM) based in UNEP Department of Environmental Policy Implementation (DEPI)/GEF Climate Change Adaptation Unit (CCAU), will be responsible for project supervision to ensure consistency with GEF and UNEP policies and procedures. The TM will formally participate in Project Steering Committee (PSC) meetings, the mid-term and final evaluations, the clearance of half yearly and annual reports, and the technical review of project outputs.

LDCF Project

Execution Agency:

National Environmental Protection Agency - NEPA (with execution support from UNEP's Department for Environmental Policy Implementation/Afghanistan's Post-Conflict and Disaster Management Branch) – UNEP DEPI/PCDMB

Roles: Chair of PSC, financial management, procurement and legal responsibility.

Implementing Agency:

UNEP's Department for Environmental Policy Implementation/GEF Climate Change Adaptation Unit – UNEP DEPI/GEF CCAU

Roles: Oversight, leadership and technical assessment of project outputs, products and deliverables. Ensuring that the UNCT is informed of project progress.

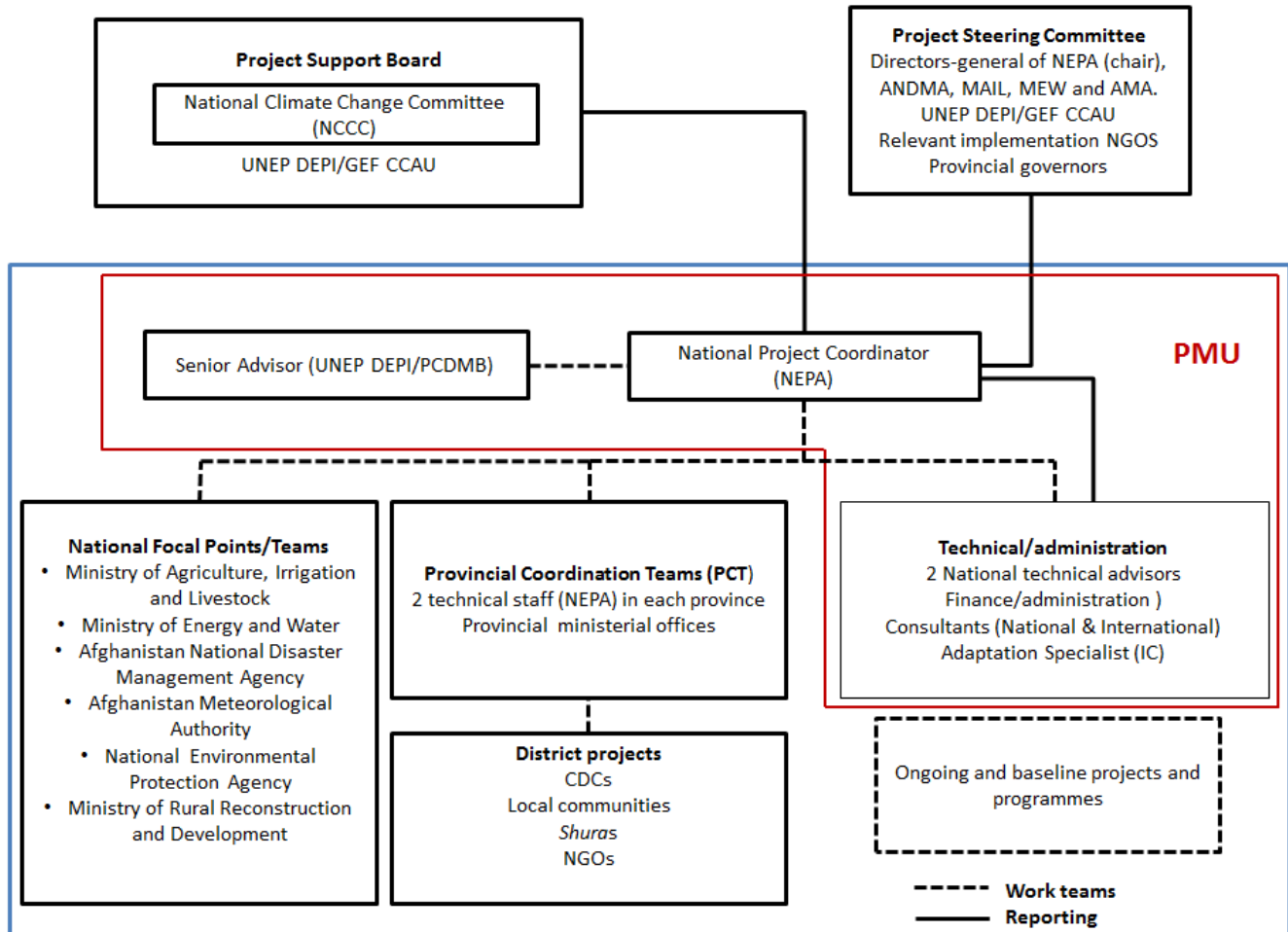


Figure 7: The LDCF project's management structure.

233. NEPA will be the Executing Agency (EA) for the project. Through its letter dated 22 May 2012, appended in Appendix 21, NEPA has authorized UNEP DEPI/Post Conflict and Disaster Management Branch (PCDMB) to provide execution support to the project. UNEP DEPI/PCDMB will work closely with NEPA to ensure that national capacity is built to enable the execution of similar GEF/LDCF projects in the future.

234. UNEP will ensure adequate segregation of reporting between its IA and EA role in line with the differentiation between the PCDMB and GEF CCAU units..

Management structure

235. The LDCF project implementation arrangements comprise the following:

- (i) PSC to provide oversight and support to the project.
- (ii) Project Management Unit (PMU) to execute the project.
- (iii) National Project Coordinator (NPC) who heads the PMU.
- (iv) Senior Adviser (SA) who will provide day-to-day guidance to the project team on executing the project.
- (v) Technical advisors.
- (vi) Provincial coordination teams.
- (vii) Administrative and financial assistant.
- (viii) Consultants (national and international).

236. The main role of the PSC will be to: i) guide and oversee the technical progress and performance of the LDCF project; ii) enhance and optimize the contributions of various partner organizations through coordination of all activities and inputs; and iii) consider and approve annual work and procurement plans and review project reports and deviations from the approved plans. All decisions taken by the PSC will be communicated to all parties concerned by the PMU. The PSC will include high-level representatives from NEPA, MEW, MAIL, AMA, UNEP DEPI/PCDMB, UNEP DEPI/GEF CCAU and priority provinces (Badakhshan, Balkh, Bamyan and Daikundi). It will be chaired by the NEPA Representative. The PSC will meet twice a year, with ad hoc meetings held when necessary to discuss the project key performance indicators and provide future guidance. At the discretion of this initial committee, members of relevant implementing NGOs may be invited to sit on the PSC to ensure local ownership and guidance for the project. The secretarial role of the PSC will be filled by the NPC.

237. To ensure national ownership, the NPC will report annually to the Project Support Board (PSB). The PSB will comprise the NCCC, which is the government-mandated committee for oversight of climate change matters (see the TORs and membership of the NCCC in Appendix 9), with an additional UNEP DEPI/PCDMB representative. The NCCC was formed during the INC process, which is almost complete. Although it is a very young institution, it is the most appropriate government entity to supervise climate change policy and strategy, and will therefore be supported in terms of both finances and capacity building throughout the duration of the LDCF project. Consequently, the PSB will provide guidance and feedback to the PSC regarding funding, implementation and policy recommendations. Where changes to the Results Framework or timeline are recommended by the PSC, or where the delivery of project outcomes is likely to be delayed or impaired, the PSC will notify UNEP DEPI/PCDMB and the PSB well in advance to allow for corrective action to be undertaken.

238. For the purpose of the execution of the project, a PMU will be established at NEPA that will support day-to-day project execution. The PMU will be accountable to UNEP DEPI/PCDMB and UNEP DEPI/GEF CCAU for ensuring:

- (i) the quality of the different outputs and outcomes of the LDCF project;
- (ii) the effective use of both international and national resources allocated to it;
- (iii) the timely availability of financing to support project implementation; and
- (iv) the proper coordination among all project stakeholders, in particular, national parties.

239. A full-time NPC will be hired for day-to-day management of the project. He/She will head the PMU and will be liaise with the Senior Adviser (SA) in terms of execution support. The NPC will report to the Head of NEPA and to the SA. The NPC will also provide significant technical input into the relevant technical components of the project, playing both an oversight role and a hands-on role through training, production of documents and facilitation of consultant activities relevant to the NPC's area of expertise. The management role of the NPC will be to ensure that the project is managed in a transparent and effective manner, and that it is in line with all budget and work plans in accordance with guidelines from both GEF and UNEP. The PSC will work closely with

NEPA officials and national coordinators (including the NEPA GEF coordinator) to ensure that project implementation closely adheres with national priorities and is facilitated by extant government structures.

240. In order to address the lack of technical capacity, UNEP DEPI/PCDMB will assign a staff member to provide project oversight and assistance, designated as the SA. The role of the SA will be to provide day-to-day guidance to the NPC on the implementation of the LDCF project. This will include: i) providing advice on suitable methodologies and approaches for achieving project targets and objectives; ii) assisting in drafting ToRs for technical consultants and supervision of consultants' work; iii) providing quality assurance and technical review of project outputs; iv) assisting in knowledge management and communications for awareness raising; and v) supervising and training of national technical advisors. Due to the complex nature of project and its interventions, it is anticipated that the SA will be assisted by a part-time Adaptation Specialist (international consultant). The Adaptation Specialist will provide specific support and advice on the highly technical ecological, water and agriculture-related aspects of the implementation of on-the-ground interventions. This support and advice will extend to measuring the cost effectiveness of the LDCF project interventions. The SA role will be part-time, with a larger commitment of time during the early stages of the project, and a decreasing time commitment as the project progresses. This reflects the building of capacity within the national structures.
241. Additional technical coordination and support will be provided by two national technical advisors (NTAs), each responsible for a portion of the LDCF technical work. The NTA positions will be full-time, and they will work closely with the NPC to assist in the management of the LDCF project activities. They will serve as liaisons between the NPC and other technical/administrative staff both within the CCU, and in the priority provinces. The responsibilities of the NTAs will depend upon their relevant expertise and capability, but it is anticipated that one NTA will be responsible for oversight of projects within Daikundi and Bamyan, whilst the second will focus on Badakhshan and Balkh. These positions will require regular travel to the provinces to interact with provincial NEPA staff and provide input to interventions being undertaken. In addition, the NTAs will provide technical guidance and backstopping of the role of the SA, and it is anticipated that they will take over the duties of the SA role as their capacity is enhanced throughout the project.
242. Budgetary disbursement will be managed by UNEP, to facilitate timely expenditure and disbursement, as well as promote transparency in expenditure. Financial reports will be prepared quarterly through the Integrated Management Information System (IMIS) through which UNEP tracks all internal expenditures, and will be made available to NEPA and other members of the PSC for review. Administrative support will be provided by an Administrative Assistant.
243. Additional project staff will include drivers and translators, since translation is a prerequisite for the operations of international staff within the country and UN DSS security rules requires transport with drivers for national staff. Specific technical support for specialised tasks that cannot be filled by government staff will be filled by consultants. International technical assistance will be sourced for those specialised tasks where insufficient capacity is available among government staff or national consultants. Consultant descriptions are included in the budget notes (see Appendix 1). Such international consultants will be selected with the assistance of UNEP structures and in conjunction with the NPC. ToRs for project staff are shown in Appendix 22. NEPA will commit staff and time for project implementation at the central office, as well as project officers in each of the provinces. In addition, it will contribute office space in the selected priority districts, and a vehicle at the central office. Other government agencies such as

ANDMA, MEW and AMA will commit staff to contribute to project implementation for outputs relevant to their activities.

244. Meetings between the LDCF project and the baseline project managers (NSP, NABDP, RAMA and AgroMet) will be undertaken twice a year or more frequently if required. These meetings will involve project coordinators from the various programmes to ensure alignment of goals and prevent duplication of effort. The LDCF project is the first significant adaptation project to be implemented in Afghanistan. Strong coordination between other related national and local projects is required to maximise the value-added benefits of the LDCF project. As a result, a project managers' coordination working group will be established to exchange lessons learned and coordinate efforts during the project implementation. This working group will comprise managers from other ongoing projects detailed in Section 2.8, as well as new projects that may come online during the project duration.

245. Implementation of project demonstration activities within the identified priority areas will be undertaken by non-governmental partner agencies with prior experience of successful project implementation and strong community ties within the project sites.

SECTION 5: STAKEHOLDER PARTICIPATION

246. The implementation strategy for the project is dependent on comprehensive stakeholder participation. At the community level, this will be ensured through the support provided to CDCs and shuras that are actually implementing the project interventions. NGOs (including potential implementation partners) will be invited to participate in decentralised committees and working groups at a national level, as required and appropriate.

Table 6: Relevant partners and stakeholders identified for engagement by project outcome.

Outcome	Output	Lead Institution	Key Partners	Key responsibilities
Outcome 1: Increased capacity and knowledge base for assessment monitoring and forecasting of climate change-induced risks to water in Afghanistan.	1.1 Improved tools to assess, monitor, predict and interpret climate change related risks and associated training course development and delivery.	NEPA, AMA	MEW, MAIL, Agromet, RAMA, WMO, ICIMOD, RIMES	Overseeing institutional mapping and training needs analysis. Developing strategic networks and partnerships for climate information management and exchange. Identifying appropriate climate models and overseeing assessment of risks and vulnerability maps. Implementing relevant training courses

Outcome	Output	Lead Institution	Key Partners	Key responsibilities
Outcome 1: Increased capacity and knowledge base for assessment monitoring and forecasting of climate change-induced risks to water in Afghanistan.	1.2 A model and standard operating procedures for a national EWS system for the systematic collection, analysis, and distribution of information on climate change-induced risks to water resources at the national and community levels developed, and piloted in the four priority provinces	NEPA, ANDMA	MAIL, MEW; AMA, RAMA, AgroMet, RIMES, WMO,	Assessing current and available EWSs, and developing SOPs for all aspects of EWS implementation. Oversee training of relevant stakeholders. Establishing pilot EWS in the four priority provinces.
	1.3 Technical and policy briefs for policy makers on climate change risks to water and other key sectors developed.	NEPA, AMA	MEW, ANDMA	Preparing policy and training briefs. Overseeing training course for policy makers.
Outcome 2: Climate change risks integrated into relevant policies, plans and programmes.	2.1 Tools and methodology for identification, evaluation and mainstreaming of climate change adaptation measures in the water sector and other water related/ affected sectors developed.	NEPA	MAIL, MEW, MUD, relevant NGOS	Assessing available and relevant tools. Developing climate change adaptation toolkit. Integrating climate change adaptation measures into sectoral policies and development plans
	2.2 Tools and training material targeting the current inter-ministerial coordination mechanism for climate change risk and adaptation integration (NCCC) developed.	NEPA	NCCC	Evaluating the effectiveness of government structures to incorporate climate change adaptation into national strategies and policies. Overseeing training and NCCC meetings to improve effectiveness.

Outcome	Output	Lead Institution	Key Partners	Key responsibilities
Outcome 2: Climate change risks integrated into relevant policies, plans and programmes.	2.3 Policy options to include climate change risk and adaptation measures for sectoral policies and plans (water, agriculture, and disaster and conflict prevention) developed and proposed.	NEPA	MAIL, MEW, MRRD, MUD, NCCC	Undertaking gap analysis of climate change into national policy, and promoting integration to address gaps. Developing overarching climate change policy for Afghanistan.
	2.4 Capacities developed to implement the national climate change adaptation strategy and climate proofed sectoral plans.	NEPA	MAIL, MEW, MRRD	Assessing training needs and overseeing required training to build government capacity to integrate climate change in sectoral plans.
Outcome 3: Reduction of climate change vulnerability in the selected project sites through local institutional capacity building and concrete interventions for improved water use efficiency.	3.1 Pilot demonstrations to build resilience in the irrigated agricultural sector through cost efficient water infrastructure and irrigation technologies implemented in Badakhshan Province.	NEPA	MEW, MAIL, MRRD, sectoral NGOs, NSP, NABDP	Overseeing socio-economic and local assessments of the value of goods and services. Overseeing implementation of pilot interventions.
	3.2 Pilot demonstrations to build resilience in the dryland agricultural sector through drought-resilient crops, water harvesting and catchment restoration measures implemented in Balkh Province and Badakhshan Province.	NEPA	MEW, MAIL, ICARDA, sectoral NGOs; NSP	Promoting planting and research of drought-resilient crop cultivars and alternative species. Overseeing implementation of pilot interventions.

Outcome	Output	Lead Institution	Key Partners	Key responsibilities
Outcome 3: Reduction of climate change vulnerability in the selected project sites through local institutional capacity building and concrete interventions for improved water use efficiency	3.3 Pilot demonstrations to build resilience in rural peri-urban communities through restoration of aquatic zones implemented in Daykundi Province.	NEPA	MAIL, MEW, MRRD, ICARDA, relevant sectoral NGOs.	Overseeing studies to assess value of multi-benefit plant species, and determining cost-effectiveness and planting to restore degraded ecosystems. Overseeing implementation of pilot interventions.
	3.4 Creation and institutional strengthening of water management associations by training members on integrated water resources management and ecosystem based adaptation in Bamyan District and other pilot areas.	NEPA	NSP, NABDP, MRRD, MEW, MAIL.	Establishing community water management associations. Developing training tools for IWM and restoration ecology at the local level. Overseeing training workshops within local communities.
Outcome 4: Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.	4.1 Project lessons captured in, and disseminated through a project specific web site, the Global Adaptation Network (GAN) and the Asia-Pacific Adaptation Network (APAN).	NEPA	ICIMOD, MAIL	Capturing lessons learned and distributing through relevant media channels and dissemination tools. Overseeing development of project specific website
	4.2 Project knowledge shared with other countries in the region facing similar climate-induced drought and flooding hazards.	NEPA	ICIMOD,	Assessing and establishing regional knowledge exchange structures. Overseeing regional workshops.
	4.3 Project knowledge for national flood and drought prevention incorporated into training approaches and materials.	NEPA	MAIL, MRRD, MEW, MUD	Developing and incorporating training tools into national public service training programmes.

Outcome	Output	Lead Institution	Key Partners	Key responsibilities
Outcome 4: Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.	4.4 Awareness raising activities on climate change-induced risks to water resources and adaptation for local communities and key national policymakers delivered using appropriate means.	NEPA		Overseeing national public awareness campaign and implementation of climate impacts change and adaptation into school curricula. Overseeing national policy workshops and disseminating resulting lessons learned.
	4.5 Resource mobilisation strategy developed for replication of project lessons and demonstrations in other locations of Afghanistan.	NEPA		Overseeing training courses for proposal writing to replicate project activities. Identifying additional locations for project replication and supporting development of related funding proposals.

SECTION 6: MONITORING AND EVALUATION PLAN

247. The LDCF project will be monitored through the M&E activities described below and in accordance with the budget presented in Appendix 1. The costed M&E budget is shown in Appendix 6.
248. The LDCF project monitoring and evaluation (M&E) will be conducted in accordance with established UNEP and GEF procedures for Full Scale Projects (FSPs) under the LDCF Portfolio Project. The project progress will be monitored and evaluated based on the SMART indicators as contained in the LDCF project’s Results Framework (see Appendix 3) for each expected output as well as mid-term and end-of-project targets. The logframe will be the main tool for assessing project implementation progress and whether results are being achieved. The means of verification are also included in the Results Framework. M&E-related costs are included in the LDCF project budget.
249. The M&E plan will be reviewed and revised as necessary during the LDCF project inception phase to ensure that stakeholders understand their roles and responsibilities. Day-to-day project monitoring is the responsibility of the NPC and his/her team. The National Project Coordinator (NPC) will submit 6 monthly narrative progress reports and quarterly financial reports to UNEP. Other partners will have responsibilities to collect specific information to track the indicators. It is also the responsibility of the NPC to inform UNEP and the PSC of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.
250. The LDCF project will undertake a **Baseline Assessment** during the first three months of the project in order to ascertain the baseline conditions for indicators identified in the Results Framework. This baseline will incorporate Vulnerability Risk Assessments (VRAs) to determine the number of people vulnerable to climate change risks in the priority project areas.

251. A **Project Inception Workshop** will be held within the first 3 months of the start of project and will involve those with assigned roles in the LDCF project management structure (see Figure 7), UNEP representatives and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Annual Work Plan (AWP), with a detailed M&E Strategy, will be agreed on at the Inception Workshop. The Inception Workshop Report should be prepared no more than 1 month after the Inception Workshop.
252. UNEP will develop a **Supervision Plan** during the LDCF project's inception phase that will be distributed and presented to all stakeholders during the Inception Workshop. The emphasis of the Supervision Plan will be on outcome monitoring, learning and sustainability, but without neglecting financial management and implementation monitoring. Project risks and assumptions will be regularly monitored by UNEP. Key financial parameters will be monitored annually to ensure the cost-effective use of financial resources.
253. The LDCF project will undergo an independent **Mid-Term Evaluation** at the mid-point of project implementation. The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the LDCF project's term. The organization, ToR and timing of the Mid-Term Evaluation will be decided after consultation between the parties to the LDCF project document. The relevant GEF Focal Area Tracking Tools will also be completed during the Mid-Term Evaluation cycle.
254. An independent **Final Evaluation** will take place three months prior to the LDCF project end date in accordance with UNEP and GEF guidance. The Final Evaluation will focus on the delivery of the LDCF project's results as initially planned (and as corrected after the Mid-Term Evaluation, if any such correction took place). The Final Evaluation will assess the impact and sustainability of results, including their contribution to capacity development and the achievement of adaptation benefits. The Final Evaluation should also provide recommendations for follow-up activities.
255. A key **Annual Project Review/Project Implementation Review** (PIR) will be prepared to monitor progress made since the LDCF project's start and in particular for the previous reporting period. The PIR will include, but is not limited to, reporting on the following:
- Progress made toward the LDCF project's objective and outcomes – each with indicators, baseline data and end-of-project targets (cumulative).
 - Project outputs delivered per project outcome (annual).
 - Lesson learned/good practice.
 - AWP and other expenditure reports.
 - Project risks and adaptive management.
256. Periodic monitoring will be conducted through visits to the demonstration sites undertaken by relevant staff from UNEP and the NCCC/PSC. Visits will be jointly conducted based on the agreed schedule to assess project progress first hand.

Auditing Procedures

257. As a result of a letter from the national GEF focal point requesting execution assistance from UNEP, the UNEP Post-Conflict and Disaster Management Branch (PCDMB) office within Afghanistan will be directly assisting in the project execution (see Section 4: Institutional Framework for details). Part of this execution role will involve the administration of all project finances on behalf of NEPA, due to the lack of appropriate financial management mechanisms within the national government structures for direct allocation of project resources to a government agency. As a result, all project expenditures will be directly tracked through the UNEP IMIS system. Quarterly expenditure reports will therefore be generated through the internal auditing mechanism, which will be presented to the PSC. The NPC will be responsible for addressing any queries generated by the UNEP auditing process, and will make available all project-related technical and substantive reports available to all stakeholders within the PSC.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1 Overall project budget

258. The total budget for this project is \$19,790,000.

Table 7: A breakdown of total project financing

	LDCF Funds	Co-Financing	Total Cost
Total project cost (US\$)	\$5,390,000	\$14,400,000	\$19,790,000

7.2 Project co-financing

Co-financing will be provided by the following partners, as per the attached co-financing letters (see Appendix 23).

Table 8: Breakdown of project financing by funder.

	US\$	%
Cost to the LDCF	\$5,390,000	27.2
Co-financing		
National Solidarity Programme (NSP)	\$10,000,000	50.5
National Area-Based Development Programme (NABDP)	\$2,400,000	12.1
National Environmental Protection Agency	\$1,000,000	5.1
Agro-Meteorology Programme (AgroMet)	\$600,000	3.0
Rehabilitation of the Afghan Meteorological Authority	\$400,000	2.0
Total	\$19,790,000	100

7.3 Project cost effectiveness

259. The LDCF project has sought to build on current development initiatives in order to climate proof them. Full costings for interventions in Bamyan, Badakhshan and Daykundi have been undertaken, and preliminary costings were carried out by ICARDA for Balkh, and the projects were deemed cost effective (see Appendix 1). The effectiveness of the interventions in increasing resilience to climate change will be tested and measured during the course of the LDCF project (Outcome 4.1). This will involve undertaking an economic analysis and performing cost-benefit analyses to ascertain whether each activity is economically viable option given climate change. The most successful activities

will be prioritised for upscaling to additional areas in Afghanistan, and details regarding their implementation and lessons learned from the project will be disseminated at workshops and training events to ensure their mainstreaming.

260. Cost effectiveness is further ensured by building upon the current baseline projects in the areas, ensuring the long-term viability of the developments under conditions of climate change. In addition, by targeting upland areas and focussing at a watershed level, the ecosystem services protected by project interactions will result in significant downstream benefits, ensuring the not only local communities but all households dependent on regular water supplies from the watersheds will benefit from the LDCF project interactions. This ecosystem management approach to climate change adaptation ensures benefits are widespread, since the value of ecosystem services extends far beyond the local impact.
261. By providing technical training and financial support to community organisations and improving livelihoods through, for example, improved agricultural resilience, the LDCF project will engender ownership of the project and enhanced capacity within these communities. This reduces the overhead for monitoring and maintenance of the activities, and will promote sustainability of project benefits beyond the project lifespan.
262. Building upon current national development programmes and enhancing capacity within the management structures mandated by government further demonstrates the cost effectiveness of the LDCF project.

SECTION 8: APPENDICES

Appendix 1 Budget by project components and UNEP budget lines (GEF funds only – US\$).

A 1.1 Full budget details

Project title: Building adaptive capacity and resilience to climate change in Afghanistan

Project number:		548													Notes
Project executing partner:		National Environmental Protection Agency													
Project implementation period:		Expenditure by project component/activity							Expenditure by calendar year						
From:	Nov-12	Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total		
To:	Dec-16														
UNEP Budget Line		Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total		
10	PERSONNEL COMPONENT														
	1100														
	1101														
	1102														
	1199														
	1200														
	1201														
	1202														
	1203														
	1204														
	1205														
	1206														
	1207														

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	Notes
		1208	National hydrological specialist (8.2 months @ \$1800/month)	14,700	-	-	-	-	-	14,700	-	14,700	-	-	14,700	
		1209	National EWS/disaster management consultant (6.8 months @ \$1700/month)	11,550	-	-	-	-	-	11,550	2,100	7,350	2,100	-	11,550	
		1210	International EWS/disaster management specialist (42 days @ \$500/day)	21,000	-	-	-	-	-	21,000	-	21,000	-	-	21,000	
		1211	National climate change adaptation specialist (23.3 months @ \$1800/month)	12,600	21,000	4,200	4,200	-	-	42,000	4,200	6,300	16,800	14,700	42,000	
		1213	International negotiations specialist (23 days @ \$500/day)	-	11,400	-	-	-	-	11,400	11,400	-	-	-	11,400	
		1214	National socioeconomist (10.7 months @ \$1570/month)	-	-	16,800	-	-	-	16,800	12,600	2,100	2,100	-	16,800	
		1216	International ecosystem management specialist (36 days @ \$500/day)	-	-	17,800	-	-	-	17,800	17,800	-	-	-	17,800	
		1217	National hydrological engineer (6 months @ \$1575/month)	-	-	9,450	-	-	-	9,450	3,150	3,150	3,150	-	9,450	
		1218	International restoration ecologist (61 days @ \$500/day)	-	-	30,600	-	-	-	30,600	30,600	-	-	-	30,600	
		1219	National restoration ecologist (9.3 months @ \$1800/month)	-	-	16,800	-	-	-	16,800	8,400	4,200	4,200	-	16,800	
		1220	National publicity expert (7 months @ \$1500/month)	-	-	-	10,500	-	-	10,500	4,200	-	-	6,300	10,500	
		1221	National climate change education specialist (16.8 months @ \$1500/month)	-	8,400	8,400	8,400	-	-	25,200	-	6,300	2,100	16,800	25,200	
		1222	International carbon market expert (36 days @ \$500/day)	-	-	17,800	-	-	-	17,800	-	17,800	-	-	17,800	

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	Notes
		1223	National M&E expert (11.2 months @ \$1500/month)	-	-	-	16,800	-	-	16,800	8,400	-	-	8,400	16,800	
		1224	International dynamic systems modeller (61 days @ \$500/day)	-	30,600	-	-	-	-	30,600	-	30,600	-	-	30,600	
		1225	National policy advisor (10.3 months @ \$1630/month)	-	16,800	-	-	-	-	16,800	-	8,400	4,200	4,200	16,800	
		1299	Sub-total	295,939	239,890	255,925	105,146	-	53,400	950,300	297,672	283,224	158,196	211,208	950,300	
	1300		Administrative Support							-						
		1301	Administrative assistant (48 months @ \$1300/month)	-	-	-	-	62,400	-	62,400	15,600	15,600	15,600	15,600	62,400	
		1302	Driver (48 months @ \$1042/month)	-	-	-	-	50,000	-	50,000	12,500	12,500	12,500	12,500	50,000	5
		1399	Sub-total	-	-	-	-	112,400	-	112,400	28,100	28,100	28,100	28,100	112,400	
	1600		Travel on official business							-						
		1601	Internal UN secure flights to provinces (48 months @ \$2400/month)	23,040	5,760	74,880	11,520	-	-	115,200	28,800	28,800	28,800	28,800	115,200	6
		1602	Teams and local transport in provinces	8,400	2,100	27,300	4,200	-	-	42,000	21,000	13,860	3,570	3,570	42,000	7
		1699	Sub-total	31,440	7,860	102,180	15,720	-	-	157,200	49,800	42,660	32,370	32,370	157,200	
1999			Component total	469,179	379,550	464,905	237,766	143,900	53,400	1,748,700	507,772	486,184	350,866	403,878	1,748,700	
20	SUB-CONTRACT COMPONENT															
	2100		Sub-contracts (MOUs/LOAs for cooperating agencies)												-	8
		2101	UNOCA security contract for office (\$2,900 per month)	34,800	34,800	34,800	34,800	-	-	139,200	34,800	34,800	34,800	34,800	139,200	9
		2199	Sub-total	34,800	34,800	34,800	34,800	-	-	139,200	34,800	34,800	34,800	34,800	139,200	
	2200		Sub-contracts (MOUs/LOAs for supporting organizations)												-	10
		2201	Baseline assessment and VRAs	-	-	63,300	-	-	-	63,300	63,300	-	-	-	63,300	11

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	Notes
		2202	Sub-contract for demonstration and improvement of drought-resilient agricultural practices for Balkh and Badakhshan Provinces (including <i>inter alia</i> selection of drought-tolerant crop varieties, identification of low-cost water harvesting interventions, and identification of multi-use plant species suitable for watershed and rangeland restoration).	-	-	664,000	-	-	-	664,000	287,000	208,600	168,400	-	664,000	12
		2203	Sub-contract for restoration and protection of peri-urban wetland ecosystems for improved resilience to climate change in Nili District, Daykundi Province.	-	-	411,450	-	-	-	411,450	149,000	159,000	95,450	8,000	411,450	13
		2205	Sub-contract to design and pilot community-based integrated watershed and ecosystem management in Bamyan.	-	-	375,000	-	-	-	375,000	90,750	98,750	94,750	90,750	375,000	14
		2206	Sub-contract to implement improved water management in Badakhshan Province through construction of check and impoundment dams, introduction of efficient micro-irrigation technologies, and development of local water use plans.	-	-	127,000	-	-	-	127,000	52,000	65,000	10,000	-	127,000	15

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	Notes
		2207	Sub-contract for identification and promotion of drought-resilient agricultural practices for Balkh and Badakhshan Provinces (including <i>inter alia</i> selection of drought-tolerant crop varieties, identification of low-cost water harvesting interventions, and identification of multi-use plant species suitable for watershed and rangeland restoration).		-	108,000	-	-	-	108,000	36,000	36,000	36,000	-	108,000	16
		2208	Website development	-	-	-	10,000	-	-	10,000	6,400	1,200	1,200	1,200	10,000	
		2209	Sub-contract for development of PIFs for carbon market projects	-	-	30,000	-	-	-	30,000	-	15,000	15,000	-	30,000	
		2210	Climate change adaptation education campaign	-	-	-	45,000	-	-	45,000	-	-	-	45,000	45,000	
		2211	National climate change awareness campaign	-	-	-	45,000	-	-	45,000	45,000	-	-	-	45,000	
		2212	Subcontract for knowledge management and viability assessment of lessons learned	-	-	-	100,000	-	-	100,000	25,000	25,000	25,000	25,000	100,000	
		2299	Sub-total	-	-	1,778,750	200,000	-	-	1,978,750	754,450	608,550	445,800	169,950	1,978,750	
	2300		Sub-contracts (for commercial purposes)							-						
		2301	Surveys & Questionnaires	11,000	42,900	10,000	9,000	-	-	72,900	18,250	26,250	24,150	4,250	72,900	
		2302	Documentary research & analysis	21,000	18,000	33,000	24,000	-	-	96,000	28,000	41,500	18,750	7,750	96,000	
		2303	Early warning system infrastructure (radios/cellphones for communication with local focal points)	40,000	-	-	-	-	-	40,000	-	40,000	-	-	40,000	

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	Notes
		2304	Document preparation, translation and interpretation services	29,000	29,000	24,000	24,000	-	-	106,000	24,000	24,000	29,000	29,000	106,000	
		2399	Sub-total	101,000	89,900	67,000	57,000	-	-	314,900	70,250	131,750	71,900	41,000	314,900	
2999			Component total	135,800	124,700	1,880,550	291,800	-	-	2,432,850	859,500	775,100	552,500	245,750	2,432,850	
30	TRAINING COMPONENT															
	3200		Group training													
		3201	Climate change prediction	20,000						20,000	20,000	-	-	-	20,000	
		3202	Seasonal forecasting	20,000						20,000	20,000	-	-	-	20,000	
		3203	Hydrological & flood forecasting training	20,000						20,000	20,000	-	-	-	20,000	
		3204	Regional training workshops (4 provinces + Kabul) @ \$5,000 ea	40,000	45,000	40,000	20,000	-	-	145,000	20,000	30,000	70,000	25,000	145,000	17
		3205	National training workshops (@ \$10,000 ea)	30,000	60,000	-	40,000			130,000	20,000	20,000	30,000	60,000	130,000	18
		3206	Watershed-level adaptation training workshops for local communities	-	-	50,000	-	-	-	50,000	-	25,000	-	25,000	50,000	
		3299	Sub-total	130,000	105,000	90,000	60,000	-	-	385,000	100,000	75,000	100,000	110,000	385,000	
	3300		Meetings/Conferences							-						
		3301	Knowledge exchange workshop on climate change adaptation with regional partners.	-	-	-	20,000	-	-	20,000	-	-	-	20,000	20,000	
		3302	National conference on climate change adaptation	-	-	-	20,000	-	-	20,000	-	-	20,000	-	20,000	
		3303	Inception workshop	-	-	-	-	-	9,100	9,100	9,100	-	-	-	9,100	
		3304	Regular meetings of NCCC	-	12,000	-	-	-	-	12,000	3,000	3,000	3,000	3,000	12,000	
		3399	Sub-total	-	12,000	-	40,000	-	9,100	61,100	12,100	3,000	23,000	23,000	61,100	
3999			Component total	130,000	117,000	90,000	100,000	-	9,100	446,100	112,100	78,000	123,000	133,000	446,100	

UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total
40	EQUIPMENT AND PREMISES COMPONENT														
	4100		Expendable equipment												
		4101	Office Supplies	-	-	-	-	60,000	-	60,000	15,000	15,000	15,000	15,000	60,000
		4102	Library acquisition	8,400	20,000	6,000	10,000	-	-	44,400	11,100	11,100	11,100	11,100	44,400
		4199	Sub-total	8,400	20,000	6,000	10,000	60,000	-	104,400	26,100	26,100	26,100	26,100	104,400
	4200		Non-expendable equipment							-					
		4201	Computer equipment	25,000	5,000	-	-	15,000	-	45,000	15,000	30,000	-	-	45,000
		4202	Computer peripherals	-	-	-	-	5,000	-	5,000	2,500	-	2,500	-	5,000
		4203	Furniture	-	-	-	-	4,000	-	4,000	1,000	1,000	1,000	1,000	4,000
		4204	Purchase of armoured car	25,000	25,000	25,000	25,000	-	-	100,000	100,000	-	-	-	100,000
		4205	Computer software	110,000	5,000	-	-	-	-	115,000	40,000	75,000	-	-	115,000
		4299	Sub-total	160,000	35,000	25,000	25,000	24,000	-	269,000	158,500	106,000	3,500	1,000	269,000
	4300		Office Rental							-					
		4301	Office rental	24,000	24,000	24,000	24,000	-	-	96,000	24,000	24,000	24,000	24,000	96,000
		4399	Sub-total	24,000	24,000	24,000	24,000	-	-	96,000	24,000	24,000	24,000	24,000	96,000
4999		Component total		192,400	79,000	55,000	59,000	84,000	-	469,400	208,600	156,100	53,600	51,100	469,400
50	MISCELLANEOUS COMPONENT														
	5100		Operation and maintenance of equipment												
		5101	Field equipment	2,000	-	2,000	-	-	-	4,000	1,000	1,000	1,000	1,000	4,000
		5102	Office equipment	-	-	-	-	4,000	-	4,000	1,000	1,000	1,000	1,000	4,000
		5103	Operation and maintenance of vehicles					72,000		72,000	18,000	18,000	18,000	18,000	72,000
		5199	Sub-total	2,000	-	2,000	-	76,000	-	80,000	20,000	20,000	20,000	20,000	80,000
	5200		Reporting costs							-					
		5201	Printing	-	12,000	-	12,000	-	-	24,000	6,000	6,000	4,000	8,000	24,000
		5202	Maps	-	6,000	6,000	6,000	-	-	18,000	4,500	4,500	4,500	4,500	18,000
		5203	Inception workshop report	-	-	-	-	-	3,000	3,000	3,000	-	-	-	3,000
		5204	Newsletters	-	1,000	-	950	-	-	1,950	500	500	500	450	1,950
		5299	Sub-total	-	19,000	6,000	18,950	-	3,000	46,950	14,000	11,000	9,000	12,950	46,950
	5300		Sundry							-					

Notes

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UNEP Budget Line				Outcome 1	Outcome 2	Outcome 3	Outcome 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total
		5301	Communications (telephone & internet) @ \$2,000/month					96,000		96,000	24,000	24,000	24,000	24,000	96,000
		5399	Sub-total	-	-	-	-	96,000	-	96,000	24,000	24,000	24,000	24,000	96,000
	5500		Evaluation							-					
		5581	Mid-term Evaluation	-	-	-	-	-	35,000	35,000	-	35,000	-	-	35,000
		5582	Final Evaluation	-	-	-	-	-	35,000	35,000	-	-	-	35,000	35,000
		5599	Sub-total	-	-	-	-	-	70,000	70,000	-	35,000	-	35,000	70,000
5999		Component total		2,000	19,000	8,000	18,950	172,000	73,000	292,950	58,000	90,000	53,000	91,950	292,950
99	GRAND TOTAL			929,379	719,250	2,498,455	707,516	399,900	135,500	5,390,000	1,745,972	1,585,384	1,132,966	925,678	5,390,000

Notes

A 1.2 Budget Notes

1	The project coordinator role combines project management with a certain amount of technical capacity to ensure the coordination of project outputs, interventions and activities. Full TORs for the project coordinator role are provided in Annex 7.
2	The Senior Adviser (SA) role will ensure project functionality. He will contribute directly to the coordination of on-the-ground interventions under component 3, and to activities under each of the other project outcomes. In addition, the SA will assist the NPC in the training of the NTAs. The full role of the SA is described in Appendix 22 (Terms of reference for key project groups, staff and sub-contractors).
3	International consultants are budgeted at \$500/day. This is inclusive of daily consultant fee, UN DSA, and hazard pay. Costs for flights are also included in the consultant's budget line, and are estimated at \$5,000 per return flight. National expert consultants are budgeted according to their level of qualification required, and the monthly rates include a DSA of \$32 for positions that require travel outside of the consultant's home area.
4	The Adaptation Specialist will provide inputs into all adaptation components of the project. There is very little in-country expertise with respect to climate change adaptation, and consequently the adaptation specialist will facilitate interventions
5	At least one driver is required to operate the armoured vehicle for project staff.
6	Internal flights are required for transport to project sites, since travel by road is not feasible due to security threats. This increased cost has therefore been assigned to the different components in proportion to the amount of travel required. Current costs for a single internal flight on UNAMA/UNHAS are \$300 per flight (\$600 return). Project costs are estimated for four return flights per month. Internal movement of national consultants and NTAs will account for the majority of this expense, with the remainder being accounted for by international consultants.
7	Transport for project staff and consultants within the provinces must make use of available UN security infrastructure to ensure MOSS compliance. This is estimated at approximately \$950 per month using current UNEP operational costs as indicators.
8	The majority of local interventions in the priority provinces will be carried out by local communities in conjunction with either government partners where there is sufficient capacity, or NGOs operating under an MOU/LOA
9	The additional costs for a secure office (including guards and security infrastructure), which have been shared between all components, are currently a minimum of \$2,900 per month.
10	The majority of local interventions in the priority provinces will be carried out by local communities in conjunction with either government partners where there is sufficient capacity, or NGOs operating under an MOU/LOA.
11	In this budget component, baseline assessments of project sites are undertaken

12	<p>This contract will develop 3 individual pilot interventions integrated with community training programs to implement drought-resilient agriculture techniques. Specific pilot interventions will include: i) implementation of water harvesting measures over at least 400 ha in Balkh, Dihdadi and Nahri Shahi Districts, Balkh Province; ii) planting of at least 400 hectares of drought-resilient traditional crops and alternative species, in conjunction with current research undertaken by MAIL and ICARDA in Balkh, Dihdadi and Nahri Shahi Districts, Balkh Province; and iii) restoration of at least 200 hectares of degraded watershed by introducing multi-use plant species in Faizabad district, Badakhshan Province. Indicative costs for each component are estimated as: i) degraded watershed restoration with multi-use forests, US\$ 168,000; ii) ~400 hectares of drought-resilient crops, US\$ 285,600; iii) ~400 hectares of water harvesting measures, US\$ 104,000; and iv) training component, US\$ 106,400. Further detail of costs per year are provided in Appendix 15: Indicative costs of micro-scale water efficiency measures in Component 3.1</p>
13	<p>This subcontract will introduce widespread measures to restore and protect degraded and vulnerable aquatic systems (including wetlands, floodplains, riverbanks, catchment areas), thereby increasing water catchment and reducing vulnerability to flooding of rural and peri-urban areas in Daykundi Province. Pilot interventions will include revegetation and restoration of at least 120 hectares of key aquatic systems, and construction of at least 140 hectares of low-cost water barriers and catchment structure for each of 3 pilot villages. Further detail of costs per year are provided in Appendix 18: Indicative costs of restoration of wetland/riparian areas to enhance water catchment and reduce incidence of flood for Component 3.3</p>
14	<p>This subcontract will aid communities in developing and implementing integrated watershed management plans and community-based adaptation measures, developed for at least 5 peri-urban areas in the high ecological value area of catchments flowing north from the Koh-e Baba watershed in Bamyan Province. Specific activities will include: i) developing community conservation plans and restoration plans; ii) developing an implementation strategy for sustainable community-managed green space in these villages; and iii) organising training sessions for communities and other provincial partners for conservation education and management of small-scale mountain conservation areas. Costs are estimated at \$75,000 per village (\$375,000 in total)</p>
15	<p>This contract will introduce multiple pilot interventions which will enhance the climate resilience of irrigated agriculture in Badakhshan Province. Interventions will include: i) construction of at least 10,500 m³ of check dams to increase water supply and storage; ii) construction of at least 3 sand/gravel storage dams of size to be determined by budgetary and logistical constraints; and iii) introduction of Affordable Micro-Irrigation Technology (AMIT) to at least 424 households to increase micro-irrigated agricultural area by at least 42 hectares. In addition, communities involved in pilot interventions will be trained in the use and maintenance of these technologies and will be engaged in the development of water management plans. Further detail of indicative costs per year are provided in Appendix 15: Indicative costs of micro-scale water efficiency measures in Component 3.1</p>

16	This contract will identify and propose drought-resilient agriculture interventions and techniques suitable for the dryland agricultural sector in Balkh Province and Badakhshan Province. Specifically, interventions to be defined and developed should include: i) identification of suitable drought-tolerant varieties of traditional crops, as well as potential alternative crops, that can be trialled in pilot interventions; ii) identification of suitable water harvesting techniques such as catchment ponds, stone bunds, and strip-crop cultivation that can be trialled by local communities; and iii) identification of multi-use plant species, preferably indigenous, which can be used to restore degraded land around agricultural areas, in order to improve water catchment and reduce soil erosion while providing alternative food sources and income.
17	Training workshops are budgeted at \$5,000 each, including local travel, daily stipends, equipment and stationery, and meals. Training workshops will be carried out in Kabul and in each of the four priority provinces.
18	National training workshops are budgeted at \$10,000 each, to cover DSA for participants, accommodation and transport to a central location. Where internal air travel is necessary for participants or trainers to reach the training venues, it will be budgeted separately against the security costs (see notes on internal travel).
19	A full GIS suite, including software and hardware will be required in order to carry out mapping and vulnerability assessments. Spatial modelling software is very expensive.
20	NEPA has dedicated office space for the climate change unit in its new headquarters. However, at present GoIRA buildings do not meet UN Minimum Operational Security Standards (MOSS), and consequently UN contractors and staff may not be based in this space. The rental of office space within a secure UN compound is therefore seen as an additional security cost which has been shared between all components. Office space at \$2,000 per month at the UNOCA compound on Jalalabad road is a partial cost (~20%) of the current rental cost for the UNEP offices, corresponding to the additional space requirements for the PMU.
21	Vehicle expenses include operation and maintenance costs armoured and standard vehicles. Expenses for armoured vehicles can be particularly high, including fuel use due to heavy armour, and the cost of replacement tyres and parts. Maintenance expenses for standard vehicles are high due to the poor state of roads.

Appendix 2 Co-financing by source and UNEP budget lines.

Project title:		Building adaptive capacity and resilience to climate change in Afghanistan												
Project number:		548												
Project executing partner:		National Environmental Protection Agency (Afghanistan)												
Project implementation period:														
From:	November 2012	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total	
To:	December 2016		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
UNEP Budget Line		A	B	C	D	E	F	G	H	I	J	K	A+B+D+F+ H+J	C+E+G+I+k
10	PERSONNEL COMPONENT													
1100	Project personnel													
1101	National Project Coordinator (48 months @ \$2100/month)	100,800	-	-	-	-	-	-	-	-	-	-	100,800	-
1102	Senior Adviser	428,000	-	-	-	-	-	-	-	-	-	-	428,000	-
1199	Sub-total	578,800	-	-	-	-	-	-	-	-	-	-	578,800	-
1200	Consultants	-	-	-	-	-	-	-	-	-	-	-	-	-
1201	Adaptation Specialist (533 days @ \$500/day)	266,400	-	-	-	-	-	-	-	-	-	-	266,400	-
1202	2 National Technical Advisors (48 months ea @ \$2100/month)	201,600	-	-	-	-	-	-	-	-	-	-	201,600	-
1203	National ecosystem management specialist (7 months @ \$1800/month)	12,600	-	-	-	-	-	-	-	-	-	-	12,600	-
1204	National workshop facilitator (9.8 months @ \$1500/month)	14,700	-	-	-	-	-	-	-	-	-	-	14,700	-
1205	International M&E expert (107 days @ \$500/day)	53,400	-	-	-	-	-	-	-	-	-	-	53,400	-
1206	International institutional development specialist (48 days @ \$500/day)	24,200	-	-	-	-	-	-	-	-	-	-	24,200	-
1207	International climate change and water resource modeller (135 days @ \$500/day)	67,600	-	-	-	-	-	-	-	-	-	-	67,600	-
1208	National hydrological specialist (8.2 months @ \$1800/month)	14,700	-	-	-	-	-	-	-	-	-	-	14,700	-
1209	National EWS/disaster management consultant (6.8 months @ \$1700/month)	11,550	-	-	-	-	-	-	-	-	-	-	11,550	-
1210	International EWS/ disaster management specialist (42 days @ \$500/day)	21,000	-	-	-	-	-	-	-	-	-	-	21,000	-
1211	National climate change adaptation specialist (18.7 months @ \$2250/month)	42,000	-	-	-	-	-	-	-	-	-	-	42,000	-
1213	International negotiations specialist (23 days @	11,400	-	-	-	-	-	-	-	-	-	-	11,400	-

\$500/day)

UNEP Budget Line	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total	
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
1214 National socioeconomic (8.8 months @ \$1900/month)	16,800	-	-	-	-	-	-	-	-	-	-	16,800	-
1216 International ecosystem management specialist (36 days @ \$500/day)	17,800	-	-	-	-	-	-	-	-	-	-	17,800	-
1217 National hydrological engineer (5 months @ \$1900/month)	9,450	-	-	-	-	-	-	-	-	-	-	9,450	-
1218 International restoration ecologist (61 days @ \$500/day)	30,600	-	-	-	-	-	-	-	-	-	-	30,600	-
1219 National restoration ecologist (7.5 months @ \$2250/month)	16,800	-	-	-	-	-	-	-	-	-	-	16,800	-
1220 National publicity expert (5.8 months @ \$1800/month)	10,500	-	-	-	-	-	-	-	-	-	-	10,500	-
1221 National climate change education specialist (14 months @ \$1800/month)	25,200	-	-	-	-	-	-	-	-	-	-	25,200	-
1222 International carbon market expert (36 days @ \$500/day)	17,800	-	-	-	-	-	-	-	-	-	-	17,800	-
1223 National M&E expert (9.3 months @ \$2100/month)	16,800	-	-	-	-	-	-	-	-	-	-	16,800	-
1224 International dynamic systems modeller (61 days @ \$500/day)	30,600	-	-	-	-	-	-	-	-	-	-	30,600	-
1225 National policy advisor (8 months @ \$2100/month)	16,800	-	-	-	-	-	-	-	-	-	-	16,800	-
1299 Sub-total	950,300	-	-	-	-	-	-	-	-	-	-	950,300	-
1300 Administrative Support	-	-	-	-	-	-	-	-	-	-	-	-	-
1301 Administrative assistant (48 months @ \$1300/month)	62,400	-	-	-	-	-	-	-	-	-	-	62,400	-
1302 Driver (48 months @ \$1042/month)	50,000	-	-	-	-	-	-	-	-	-	50,000	50,000	50,000
1399 Sub-total	62,400	-	-	-	-	-	-	-	-	-	50,000	62,400	50,000
1600 Travel on official business	-	-	-	-	-	-	-	-	-	-	-	-	-
1601 Internal UN secure flights to provinces (48 months @ \$2400/month)	115,200	-	-	-	-	-	-	-	-	-	-	115,200	-
1602 Teams and local transport in provinces	42,000	-	-	-	-	-	-	-	-	-	32,000	42,000	32,000
1699 Sub-total	157,200	-	-	-	-	-	-	-	-	-	32,000	157,200	32,000
1999 Component total	1,748,700	-	-	-	-	-	-	-	-	-	82,000	1,748,700	82,000

UNEP Budget Line	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total		
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	
20	SUB-CONTRACT COMPONENT													
	Sub-contracts													
2100	(MOUs/LOAs for cooperating agencies)													
2101	UNOCA security contract for office (\$2,900 per month)	139,200	-	-	-	-	-	-	-	-	-	-	139,200	-
2199	Sub-total	139,200	-	-	-	-	-	-	-	-	-	-	139,200	-
	Sub-contracts													
2200	(MOUs/LOAs for supporting organizations)													
2201	Baseline assessment and VRAs	63,300	-	-	-	-	-	-	-	-	-	-	63,300	-
2202	Sub-contract for demonstration and improvement of drought-resilient agricultural practices for Balkh and Badakhshan Provinces (including inter alia selection of drought-tolerant crop varieties, identification of low-cost water harvesting interventions, and identification of multi-use plant species suitable for watershed and rangeland restoration).	664,000	-	-	-	-	-	-	-	-	-	-	664,000	-
2203	Sub-contract for restoration and protection of peri-urban wetland ecosystems for improved resilience to climate change in Nili District, Daykundi Province.	411,450	-	-	-	-	-	-	-	-	-	-	411,450	-
2205	Sub-contract to design and pilot community-based integrated watershed and ecosystem management in Bamyan.	375,000	-	-	-	-	-	-	-	-	-	-	375,000	-
2206	Sub-contract to implement improved water management in Badakhshan Province through construction of check and impoundment dams, introduction of efficient micro-irrigation technologies, and development of local water use plans.	127,000	-	-	-	-	-	-	-	-	-	-	127,000	-

UNEP Budget Line	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total		
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	
2207	Sub-contract for identification and promotion of drought-resilient agricultural practices for Balkh and Badakhshan Provinces (including inter alia selection of drought-tolerant crop varieties, identification of low-cost water harvesting interventions, and identification of multi-use plant species suitable for watershed and rangeland restoration).	108,000	-	-	-	-	-	-	-	-	-	108,000	-	
2208	Website development	10,000	-	-	-	-	-	-	-	-	-	10,000	-	
2209	Sub-contract for development of PIFs for carbon market projects	30,000	-	-	-	-	-	-	-	-	-	30,000	-	
2210	Climate change adaptation education campaign	45,000	-	-	-	-	-	-	-	-	-	45,000	-	
2211	National climate change awareness campaign	45,000	-	-	-	-	-	-	-	-	-	45,000	-	
2212	Subcontract for knowledge management and viability assessment of lessons learned	100,000	-	-	-	-	-	-	-	-	-	100,000	-	
2213	Baseline co-financing	-	-	9,950,000	-	400,000	-	600,000	-	2,400,000	-	331,000	-	13,681,000
2299	Sub-total	1,978,700	-	9,950,000	-	400,000	-	600,000	-	2,400,000	-	331,000	1,978,700	13,681,000
2300	Sub-contracts (for commercial purposes)	-	-	-	-	-	-	-	-	-	-	-	-	-
2301	Surveys & Questionnaires	72,900	-	-	-	-	-	-	-	-	-	72,900	-	
2302	Documentary research & analysis	96,000	-	-	-	-	-	-	-	-	-	96,000	-	
2303	Early warning system infrastructure (radios/cellphones for communication with local focal points)	40,000	-	-	-	-	-	-	-	-	-	40,000	-	
2304	Document preparation, translation and interpretation services	106,000	-	-	-	-	-	-	-	-	-	106,000	-	
2399	Sub-total	314,900	-	-	-	-	-	-	-	-	-	314,900	-	
2999	Component total	2,432,800	-	9,950,000	-	400,000	-	600,000	-	2,400,000	-	431,000	2,432,800	13,781,000

UNEP Budget Line	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total	
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
30													
3200	Group training												
3201	Climate change prediction	20,000	-	-	-	-	-	-	-	-	-	20,000	-
3202	Seasonal forecasting	20,000	-	-	-	-	-	-	-	-	-	20,000	-
3203	Hydrological & flood forecasting training	20,000	-	-	-	-	-	-	-	-	-	20,000	-
3204	Regional training workshops (4 provinces + Kabul) @ \$5,000 ea	145,000	-	-	-	-	-	-	-	-	-	145,000	-
3205	National training workshops (@ \$10,000 ea)	130,000	-	-	-	-	-	-	-	-	-	130,000	-
3206	Watershed-level adaptation training workshops for local communities	50,000	-	-	-	-	-	-	-	-	-	50,000	-
3299	Sub-total	385,000	-	-	-	-	-	-	-	-	-	385,000	-
3300	Meetings/Conferences	-	-	-	-	-	-	-	-	-	-	-	-
3301	Knowledge exchange workshop on climate change adaptation with regional partners.	20,000	-	-	-	-	-	-	-	-	-	20,000	-
3302	National conference on climate change adaptation	20,000	-	-	-	-	-	-	-	-	-	20,000	-
3303	Inception workshop	9,100	-	-	-	-	-	-	-	-	-	9,100	-
3304	Regular meetings of NCCC	12,000	-	-	-	-	-	-	-	-	-	12,000	-
3399	Sub-total	61,100	-	-	-	-	-	-	-	-	-	61,100	-
3999	Component total	446,100	-	-	-	-	-	-	-	-	-	446,100	-
40													
4100	Expendable equipment												
4101	Office Supplies	60,000	-	-	-	-	-	-	-	-	50,000	60,000	50,000
4102	Library acquisition	44,400	-	-	-	-	-	-	-	-	10,000	44,400	10,000
4199	Sub-total	104,400	-	-	-	-	-	-	-	-	60,000	104,400	60,000
4200	Non-expendable equipment	-	-	-	-	-	-	-	-	-	-	-	-
4201	Computer equipment	45,000	-	-	-	-	-	-	-	-	-	45,000	-
4202	Computer peripherals	5,000	-	-	-	-	-	-	-	-	-	5,000	-
4203	Furniture	4,000	-	-	-	-	-	-	-	-	12,000	4,000	12,000
4204	Purchase of armoured car	100,000	-	-	-	-	-	-	-	-	-	100,000	-
4205	Computer software	115,000	-	-	-	-	-	-	-	-	-	115,000	-
4299	Sub-total	269,000	-	-	-	-	-	-	-	-	12,000	269,000	12,000

UNEP Budget Line	GEF Cash	NSP		RAMA		AgroMet		NABDP/ERDA		NEPA		Total	
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
4300 Office Rental	-	-	-	-	-	-	-	-	-	-	-	-	-
4301 Office rental	96,000	-	50,000	-	-	-	-	-	-	-	200,000	96,000	250,000
4399 Sub-total	96,000	-	50,000	-	-	-	-	-	-	-	200,000	96,000	250,000
4999 Component total	469,400	-	50,000	-	-	-	-	-	-	-	272,000	469,400	322,000
50													
5100 Operation and maintenance of equipment													
5101 Field equipment	4,000	-	-	-	-	-	-	-	-	-	15,000	4,000	15,000
5102 Office equipment	4,000	-	-	-	-	-	-	-	-	-	30,000	4,000	30,000
5103 Operation and maintenance of vehicles	72,000	-	-	-	-	-	-	-	-	-	120,000	72,000	120,000
5199 Sub-total	80,000	-	-	-	-	-	-	-	-	-	165,000	80,000	165,000
5200 Reporting costs	-	-	-	-	-	-	-	-	-	-	-	-	-
5201 Printing	24,000	-	-	-	-	-	-	-	-	-	-	24,000	-
5202 Maps	18,000	-	-	-	-	-	-	-	-	-	-	18,000	-
5203 Inception workshop report	3,000	-	-	-	-	-	-	-	-	-	-	3,000	-
5204 Newsletters	2,000	-	-	-	-	-	-	-	-	-	-	2,000	-
5299 Sub-total	47,000	-	-	-	-	-	-	-	-	-	-	47,000	-
5300 Sundry	-	-	-	-	-	-	-	-	-	-	-	-	-
5301 Communications (telephone & internet) @ \$2,000/month	96,000	-	-	-	-	-	-	-	-	-	50,000	96,000	50,000
5399 Sub-total	96,000	-	-	-	-	-	-	-	-	-	50,000	96,000	50,000
5500 Evaluation	-	-	-	-	-	-	-	-	-	-	-	-	-
5581 Mid-term Evaluation	35,000	-	-	-	-	-	-	-	-	-	-	35,000	-
5582 Final Evaluation	35,000	-	-	-	-	-	-	-	-	-	-	35,000	-
5599 Sub-total	70,000	-	-	-	-	-	-	-	-	-	-	70,000	-
5999 Component total	293,000	-	-	-	-	-	-	-	-	-	215,000	293,000	215,000
99 GRAND TOTAL	5,390,000	-	10,000,000	-	400,000	-	600,000	-	2,400,000	-	1,000,000	5,390,000	14,400,000

Appendix 3 Results Framework.

	Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
Project Objective: “to increase resilience of vulnerable communities and build capacity of local and national institutions to address climate change risk”.	1. The percentage change in vulnerability of men and women living in the identified priority sites to climate change risks on the availability of water for productive and domestic uses.	1. The baseline will be determined in the identified priority sites during the inception phase through a VRA ¹²³ .	1a. Mid-way through the project, a 20% increase in the VRA scores. 1b. By the end of the project, a 50% increase in the VRA scores.	1. Gender-sensitive field surveys/VRA.	Risk: Deterioration of security situation in project sites. Assumption: Identified priority sites are best placed to demonstrate the benefits of measures to adapt to climate change.
	2. Number of national and sectoral policy and strategy documents revised/or developed to include climate change.	2. There is no national climate change policy, and sectoral policies and strategies do not make any significant mention of climate change	2. By the end of the project, at least : <ul style="list-style-type: none"> • one national climate change policy developed; and • one sectoral policy or strategy document is revised. 	2. Revised policy/ strategy documents.	Local political interference in project implementation is minimal. Government and partners are committed to adaptation and climate risk action.
	3. Number of national and local experts trained to address climate change and integrate it into national planning	3. There are currently no experts or staff trained to integrate climate change into	3. At least 1 member of staff in each relevant government agency (MRRD, MEW, NEPA, MAIL, ANDMA)	3. Reports detailing training workshops including attendance sheet and/or certificates. Revised policy/strategy	

¹²³ VRA stands for Vulnerability Reduction Assessment. The VRA is a perception-based approach, to complement quantitative indicators that measure project results. See Droesch, A.C. Gaseb, N. Kurukulasuriya, P. Mershon, A. Moussa, K.M. Rankine, D. and Santos, A. 2008. A guide to the Vulnerability Reduction Assessment. United Nations Development Programme Community –Based Adaptation Programme.

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
			national planning	trained	documents.	
Component 1 Climate change risk assessment, monitoring and forecasting information.	Outcome 1 Increased capacity and knowledge base for assessment monitoring and forecasting of climate change-induced risks to water in Afghanistan.	1. Number of climate change risk assessment training events undertaken, and number of staff from relevant agencies trained in the skills necessary for climate change risk assessments ¹²⁴ .	1. No training in forecasting, analysis and climate risk response has been undertaken.	1. By the end of project, : <ul style="list-style-type: none"> At least one national training workshop and five regional training workshops have been completed. A functioning unit within AMA or MAIL is capable of undertaking climate risk assessments (at least 5 individuals). 	1. ARP Reports detailing training workshops including attendance sheet and/or certificates.	<p>Risk: Deterioration of security situation in project sites.</p> <p>Assumption: Availability of technical expertise and equipment.</p> <p>Targeted institutions are willing to participate in training.</p>
		2. Number of staff from relevant agencies trained in specific skills needed for climate change EWS.	2. None	2. At least 2 representatives of the following agencies: AMA; ANDMA; MAIL and MEW trained in specific skills needed for a climate change EWS.	2. ARP Reports detailing training workshops including attendance sheet and/or certificates.	

¹²⁴ An institutional mapping exercise and a training needs analysis in relevant government agencies to determine shortfalls in assessment, monitoring, prediction and interpretation of climate change risks as well gaps in EWS knowledge, practice and capacity will be undertaken as preliminary activities under outcome 1.

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
		3. Vulnerability maps based on regional climate change models, spatial models and hydrological models produced.	3. Vulnerability maps of climate change risks are not presently available.	3. By the end of the project, at least 1 detailed vulnerability map produced for each of the four ecoregions in Afghanistan.	3. ARP Vulnerability maps.	
		4. Type, amount and quality of EWS equipment provided to communities in trial areas.	4. None	4. By the end of the project, all required equipment ¹²⁵ has been distributed to communities in trial areas.	4. ARP Field visits (surveys/interviews) to the communities in trial areas.	
		5. SOPs for EWS designed, tested, and integrated into ANDMA structures.	5. No climate EWS exists in Afghanistan	5a. Midway through the project, SOPs for an EWS developed. 5b. By the end of the project, a functioning EWS trialled in the priority project areas.	5. ARP SOPs developed. Number of relevant staff trained.	
Component 2 Climate change adaptation and response strategies.	Outcome 2 Climate change risks integrated into relevant policies, plans and programmes.	1. Climate change adaptation toolkit developed .	1. No climate change adaptation toolkit has been developed for Afghanistan.	1. By the end of the project, a comprehensive adaptation toolkit developed.	2. ARP The adaptation toolkit.	Risk: Deterioration of security situation in project sites. Assumption: Government

¹²⁵ Type of required equipment to facilitate EWS delivery to communities will be developed during the development of the SOPs for the EWS.

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
		2. Climate change adaptation policy for Afghanistan developed.	2. No climate change policy has been developed for Afghanistan.	2. By the end of the project, a climate change policy including adaptation and mitigation approaches developed.	2. ARP Afghanistan climate change policy document.	commits itself to incorporate climate change adaptation into its policy documents as a matter of priority.
		3. Relevant sectoral policy and strategy documents revised to include climate change.	3. Sectoral policy and strategy do not make any significant mention of climate change.	3. By the end of the project at least one sectoral policy or strategy document is revised.	3. Revised policy/ strategy documents	
Component 3 Practices for water resources and watershed management piloted and tested in selected project sites.	Outcome 3 Reduction of climate change vulnerability in the selected project sites through local institutional capacity building and concrete interventions for improved water use.	1. Change in the number of households with access to efficient water management technologies (including drip irrigation, water storage systems and water canals) for flood and drought management (disaggregated by gender).	1. The baseline will be determined in the identified priority sites through surveys in the project inception phase.	1a. At least 424 households with access to AMIT, or an increase in at least 42 hectares of micro-irrigated areas. 1b. At least 10,500m ³ increased water storage capacity in check dams. 1c. At least three water storage impoundment dams constructed.	1. Gender-sensitive household surveys undertaken within identified priority sites.	Risks: Deterioration of security situation in project sites. Extreme climate events such as floods and droughts could disrupt project activities and/or damage ecosystems and infrastructure. Assumption: Identified priority sites are best placed to demonstrate the benefit of implemented climate change

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
						adaptation measures. Local political support for project implementation is strong.
		2. % change in the number of households and total agricultural area where agricultural management techniques adapted to intensive and prolonged droughts are practiced. Such activities include use of drought-tolerant crop varieties, diversification of crops, use of climate change-adapted cultivation practices and maintenance of seed banks.	2. The baseline will be determined in the identified priority sites through surveys in the project inception phase.	2a. At least 400 ha of agricultural land planted with drought-tolerant crop varieties for 3 successive seasons. 2b. At least 400 ha of micro-catchment techniques such as catchment ponds, contour bunds and strip-crops 2c. At least 200 ha of degraded watershed slops restored with multi-use tree species.	2. Household/ agricultural area surveys undertaken within identified priority sites.	Risks: Deterioration of security situation in project sites. Extreme climate events such as floods and droughts could disrupt project activities and/or damage ecosystems and infrastructure. Assumption: Identified priority sites are best placed to demonstrate the benefit of implemented climate change adaptation measures. Local political support for project implementation is strong.

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
		3.1. Area (ha) of flood-mitigating infrastructure implemented in rural and peri-urban areas.	3.1. 0 ha	3.1a. At least 120 ha newly planted with multiple-benefit species (to enhance ecosystem services such as water catchment, soil stabilisation, and flood protection). 3.1b. At least 140 hectares of low-cost water barriers and catchment structures for each of 3 villages (these targets are likely to be re-assessed in light of the baseline).	3.1a. Field survey techniques, maps, GPS coordinates of areas rehabilitated.	Deterioration of security situation in project sites. Extreme climate events such as floods and droughts could disrupt project activities and/or damage ecosystems and infrastructure. Assumption: Identified priority sites are best placed to demonstrate the benefit of implemented climate change adaptation measures. Local political support for project implementation is strong.
		3.2. % survivorship of newly planted multiple-benefit tree and shrub species 24 months after planting date.	3.2. NA	3.2. At least 80% survival for planted multiple-benefit tree and shrub species.	3.2. Field survey techniques.	
Component 4 Adaptive learning and dissemination of lessons learned and best practices.	Outcome 4 Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.	1. Number of knowledge products generated and disseminated.	1. None	1a. By the end of the project, lessons learned are distributed: <ul style="list-style-type: none"> • in hard copy (e.g. pamphlets, briefing notes, newsletters, booklets etc); • electronically 	1. Project evaluation reports. ALM, GAN, APAN, and WeAdapt platform. Visit to project website.	Risk: Deterioration of security situation in project sites. Assumption: Identified priority sites are best placed to demonstrate

		Indicator	Baseline	Targets	Source of verification	Risks /Assumptions
				via the project website, APANand GAN; and <ul style="list-style-type: none"> media (radio, TV). 1b. Mid-way through the project, a project website is operational and is regularly updated with project information.		benefit of implemented climate change adaptation measures.
		2. National policy workshop on climate change adaptation organised.	2. No	2. At least one national policy workshop on climate change adaptation organised.	2. ARP Workshop report including attendance sheet.	
		3. Number of public service training programmes in Afghanistan integrating knowledge generated from project lessons learned.	3. None	3. At least one public service training program in Afghanistan based on project lessons, generated.	3. ARP Training tools with integrated knowledge from project lessons learned.	

Appendix 4 Workplan and timetable.

Output	Activity	Annual breakdown				Quarterly breakdown															
		Year 1	Year 2	Year 3	Year 4	Year 1				Year 2				Year 3				Year 4			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1: Increased capacity and knowledge base for assessment monitoring and forecasting of climate change-induced risks to water in Afghanistan																					
Output 1.1	1.1.1																				
	1.1.2																				
	1.1.3																				
	1.1.4																				
	1.1.5																				
	1.1.6																				
Output 1.2	1.2.1																				
	1.2.2																				
	1.2.3																				
	1.2.4			0																	
Output 1.3	1.3.1																				
	1.3.2																				
Outcome 2: Climate change risks integrated into relevant policies, plans and programmes.																					
Output 2.1	2.1.1																				
	2.1.2																				
Output 2.2	2.2.1																				
	2.2.2																				
	2.2.3																				
Output 2.3	2.3.1																				
	2.3.2																				
	2.3.3																				
	2.3.4																				
Output 2.4	2.4.1																				
	2.4.2																				
Outcome 3: Reduction of climate change vulnerability in the selected project sites through use of appropriate technologies for improved water use efficiency and increased environmental resilience to climate change.																					

Output	Activity	Annual breakdown				Quarterly breakdown															
Output 3.1	3.1.1																				
Output 3.2	3.2.1																				
Output 3.3	3.3.1																				
Output 3.4	3.4.1																				
	3.4.2																				
	3.4.3																				
	3.4.4																				
Outcome 4: Increased knowledge of good practices on increasing resilience to climate change-induced risks to water resources.																					
Output 4.1	4.1.1																				
	4.1.2																				
	4.1.3																				
Output 4.2	4.2.1																				
	4.2.2																				
	4.2.3																				
Output 4.3	4.3.1																				
	4.3.2																				
Output 4.4	4.4.1																				
	4.4.2																				
	4.4.3																				
	4.4.4																				
Output 4.5	4.5.1																				
	4.5.2																				
	4.5.3																				

Appendix 5 Key deliverables and benchmarks.

See Appendix 3: Results Framework and Appendix 6: Costed M&E.

Appendix 6 Costed M&E.

Type of M&E activity	Responsible Parties	Budget US\$ (Excluding project team staff time)	Time frame
Inception workshop and report	<ul style="list-style-type: none"> • NPC • NTAs (National Technical Advisor) • SA (Senior Advisor) • UNEP Task Manager (TM) 	Indicative cost: \$12,100	Within first two months of project start up
Measurement of means of verification of project results	<ul style="list-style-type: none"> • UNEP TM, • SA, • NTAs • NPC will oversee 	To be finalized in Inception Phase and Workshop. This includes hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of means of verification for project progress on output and implementation	<ul style="list-style-type: none"> • UNEP TM, • NPC, • SA, • NTAs and • project team 	To be determined as part of the AWP's preparation.	Annually prior to PIR and to the definition of annual work plans
PIR	<ul style="list-style-type: none"> • NPC • NTAs • UNEP TM • UNEP FMO (Fund Management Officer) • SA 	None. Financial audit records to be provided from IMIS for PSC review	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> • NPC • SA • NTAs • UNEP TM 	None	Quarterly
Mid-term evaluation	<ul style="list-style-type: none"> • NPC • SA • External Consultant • UNEP TM 	Indicative cost: \$35,000	At the mid-point of project implementation.
Final evaluation	<ul style="list-style-type: none"> • NPC • NTAs • SA • External Consultant • UNEP TM • UNEP FMO 	Indicative cost: \$35,000	At least three months before the end of project implementation
Project terminal report	<ul style="list-style-type: none"> • NPC • NTAs 	None	On completion of the terminal evaluation.

Type of M&E activity	Responsible Parties	Budget US\$ (Excluding project team staff time)	Time frame
	<ul style="list-style-type: none"> SA UNEP FMO UNEP TM 		
Visits to demonstration sites	<ul style="list-style-type: none"> UNEP TM SA NPC NTA NCCC/PSC representatives 	For GEF supported projects, paid from IA fees and operational budget	Yearly
Consultants	<ul style="list-style-type: none"> International M&E Expert 	International M&E Expert: \$53,400	During baseline assessment in inception phase, at the mid-point of project implementation and at least three months before the end of project implementation
TOTAL indicative COST Excluding project team staff time and UNEP staff and travel expenses			Estimated to cost \$135,500

Appendix 7 Summary of consultations held.

263. The LDCF project has undertaken extensive consultation wherever possible, including government ministries and agencies, district and local officials, baseline projects, NGOs operating in relevant fields, and local communities. Certain project areas, such as the project sites in Balkh, have not been visited by the national consultants as a result of security restrictions. However, consultation with provincial officials and NGOs operating in the areas has allowed selection of suitable project interventions. The selection of project sites for these areas will be undertaken during the baseline scoping exercise during the project inception phase.

264. Stakeholder consultation will be ongoing throughout the duration of the LDCF project. The details below describe the individuals and organisations that have been consulted during the preparation of the LDCF project document and interventions.

A 7.1 Consultations undertaken by NCs during development process.

A Central Level Environmental Authority and Sectoral Ministries

Output 4.6. Implementing Agency: National Environmental Protection Agency (NEPA)

Name	Position	Email:
Mr. Mostapha Zaher	Director General	mostapha_zaher@hotmail.com
Dr. Abbas Basir	Deputy Director General, Policy and Planning	abas_baser@yahoo.co.in
Mr. Ghulam Mohammad Malikyar	Deputy Director General, Technical	malikyar@yahoo.com
Mr. Ghulam Hassan	Chief, Climate Change Division	ghulamamiry@hotmail.com
Mr. Mohammad Akbar Haqbeen	Officer, Natural Heritage Division	

Discussion

- UNEP/Afghanistan NCs explained that where required by Afghanistan's environmental law, assessments will be undertaken to verify that no adverse environmental effects are generated by the LDCF project.
- NCs briefed the DG of NEPA about the progress of the project and asked for his guidance.
- DG of NEPA expressed happiness with the progress and assured all help to the project development team.
- DG of NEPA advised the team to consult all key stakeholders and seek their views to make the project more participatory.
- DG guided the team to continuously consult with DDG/Technical who will brief him time to time.
- DG wanted the project to start as early possible.
- Project team discussed the project activities and management structure with DDG/Technical.
- Project team (national) has regularly discussed the issues with Climate Change division chief and his staffs.

Outcome:

- UNEP and NEPA agreed upon the management structure of the project, which will include a Steering Committee as an advisory body representing all relevant agencies, a project management team headed by DDG/NEPA with high-level representation from MAIL and MOEW, and a project management office with a full time national program manager. It is also recommended that provincial coordination teams be established to better coordinate operations in the priority provinces selected for on-the-ground interventions.

Output 4.7. Ministry of Agriculture, Irrigation and Livestock (MAIL)

Name	Position	Phone:	Email:
Mr. Ghani Ghuriani	Deputy Minister (technical)		ghani.ghuriani@mail.gov.af
Mr. Hukum Khan Habibi	Director General, Directorate of Extension and Agriculture Development	0700629523	hhabibi_786@yahoo.com
Mr. Aman Amanyar	Director, Department of Forestry		aman.amanyar@mail.gov.af
Mr. Mohammad Hashim Barakzai	Director General, Directorate of Natural Resources Management	0799644962	barikzai@mail.gov.af.org
Mr. Ghayor Ahmadyar	Director, Department of Protected Areas		ghayor.ahmadyar@mail.gov.af
Mr. Ahmad Zia Mirzada	Officer, Department of Forestry		mirzada2001@yahoo.com
Mr. Daud Qasimyar	Officer, Planning Division	0779524945	qasimyar.daud@gmail.com

Presentation and Discussion:

- Deputy Minister Mr. Ghuriani, with Mr. Malikyar, DDG/NEPA, Mr. Waissi, Adviser to Minister, Mr. Amanyar, Director/Forestry, Mr. Admadyar, Director/Protected Area, and Mr. Modaqiq, OIC/UNEP had visited the Bamyán from July 20 to July 23 to observe the PA and CBNRM demonstration activities.
- UNEP international experts Mr. Ernie Wijangco, CBNRM and Mr. Andrew Scanlon, Protected Area experts took the mission team to various locations of proposed demonstration sites.
- During the mission, Mr. Modaqiq briefed about the CC adaptation project and potential provinces including Bamyán for demonstration some community based adaptation measures.
- The government officials expressed great satisfaction with the community based approaches in the natural resources management and thanked UNEP for their work.
- UNEP team also detailed the project objectives and management structure to the Director General of Extension and Agricultural Development, and the Director General of Directorate of Natural Resources Management.

Outcome:

- Mr. Ghuriani ensured all support from MAIL for the CC adaptation project and active involvement of MAIL in the project management.
- Director General of Directorate of Extension and Agriculture Development, and Director General of Directorate of Natural Resources Management both ensured their full support and involvement in the project and urged to include activities on consultation and more focus on community based approaches.

Output 4.8. Ministry of Energy and Water (MEW)

Name	Position	Phone:	Email:
Eng Sultan Mahmood Mahmoodi	DG of the Directorate of Water Affairs Management	0799695011	sul.mahmood@gmail.com
Eng. Fazal Haq Bakhtary	Director of the Directorate of Water Resources	0799373432	
Mr. Farhad,	Officer, Planning Division	0799346013	

Discussion:

- UNEP Team briefed explained about NAPA process and the ongoing project development process.
- The DG briefly highlighted the Water Management Policy, Water and Energy Law, Water Management Plan of Afghanistan, River Basin Management Approach, National Program on Improvement of Irrigation Infrastructure, River Basin Councils, Sub Basin Councils, Water Users Association, and Framework Regulation for Water Users Association.
- DG also stressed the decentralization approach taken for water management specifically the river basin council, sub basin council and users association.
- DG stressed the data gap for 30 years; the need to rehabilitate the hydro-meteorological stations; the need for capacity building in modelling, flood and drought forecasting, and investment on rehabilitation of small canals.
- DG also urged UNEP to support MOEW in exploring the GEF fund for water resources sector.

Outcome:

- Directorate of Water Affairs Management and Directorate of Water Resources will actively participate in the project at centre and at provinces.
- Capacity building activities like training on hydrological modelling, drought and flood forecasting, data analysis and management to be included in the project activities.

Output 4.9. Ministry of Rehabilitation and Rural Development (MRRD)

Mr. Mohammad Younis, Officer, Planning Division

Phone: 0700059018

Email: younis.safa@mrrd.gov.af

Output 4.10. Afghanistan National Disaster Management Authority (ANDMA)

Dr. Mohammad Daim Kakar, DG of ANDMA

Discussion:

- The UNEP Afghanistan task manager briefed the DG about NAPA process and the planned project on climate change adaptation, its objectives and expected role of ANDMA.
- DG expressed happiness to work together with UNEP and informed that ANDMA and NEPA are going to sign MOU to work more closely (this MOU was signed in early December 2011).
- The DG detailed the National Disaster Management Plan, with some provincial plans already developed. He also highlighted the challenges for implementation.
- The TM informed DG about the forthcoming mission of UNEP to focus on disaster management.

Outcome

- ANDMA committed to support the program and work closely with NEPA at both the central and provincial level.
- ANDMA seeks more cooperation from UNEP in the future, particularly with respect to the accessing of GEF funds to enhance disaster reduction in Afghanistan.

Output 4.11. Ministry of Finance (MoF)

Mr. Wahid Waissi, Adviser to Minister

Phone:

Email: wahid.waissi@gmail.com

Discussion

- Mr. Wahid Waissi visited Bamyán CBNRM and PA sites together with MAIL and NEPA officials

Outcome:

- ANDS will cooperate in mainstreaming climate change adaptation and mitigation into national and sectoral policies and also in reviewing for the incorporation of economic instruments in the financial and economic policies and legal framework.

B Provincial Level Environmental Authorities, Sectoral Ministries, and Agencies.

Several missions were made by Mr. James Reeler, International Consultant, Mr. Wali Modaqiq, OIC/UNEP, and Mr. Chiranjibi Gautam, EIA and PC Expert, to the districts selected for pilot project activities. Field missions were undertaken in February and June 2011. Meetings and consultations were held with multiple regional stakeholders and authorities.

	Name	Position	Phone:	Email:
Bamyan	Dr. Habiba Sarabi	Governor		
	Mr. Mohammad Sharif	Chief, National Environmental Protection Agency	0799707679	
	Mr. Tahir Atahee	Chief, Ministry of Agriculture, Irrigation and Livestock	0799354059	
	Mr. Ahmdad Reza Rafat,	Chief, Disaster Management Authority	0773126316/ 0772434919	andma.Bamyan@gmail.com
	Mr. Amin Zaki	Chief, Ministry of Energy and Water	0773988587	amin_zaki@yahoo.com
	Mr. Mohammad Zahir	Officer, Administration and Irrigation, Ministry of Energy and Water	0707062565	
	Mr. Meia Jan Abasi	Director, Meteorological Office at Bamyan Airport		
	Mr. Mohammad Hakim Tawhidi	Assistant Officer, FAO Seed Project-Bamyan	0799149874	hakim.tawhedi@fao.org
	Eng. Nazirhusain	Project Staff, FAO Seed Project-Bamyan	0774526595	mohammadnazer.@fao.org
	Mr. Abdulghani Ebrahimi	Shura Representative of Jawkar	0799084296	
	Mr. Abdulrahim Halimi	Administator of Jawkar Shura		
Daykundi	Mr. Haji Kurban Ali Oruzgani	Governor, Daykundi Province		
	Mr. Habibullah Radmanish	Deputy Governor, Daykundi Province		
	Mr. Mehdey	Chief,		

	Name	Position	Phone:	Email:
		Provincial Ministry of Agriculture, Irrigation and Livestock Directorate		
	Mr. Salman Ali Sadiq	Chief, Provincial Ministry of Rehabilitation and Rural Development Directorate		
	Mr. Mohammad Ebrahim Sharifi	Provincial Ministry of Energy and Water Directorate		
	Mr. Alimada Sahel	Provincial Environmental Protection Agency		
Badakshan	Mr. Haji Sultan Mohammad Awrang	Former Member of Parliament	0799133724	
	Mr. Haji Kurban Ali Oruzgani	Governor, Daykundi Province		
	Mr. Habibullah Radmanish	Deputy Governor, Daykundi Province		
	Mr. Mehdey	Chief, Provincial Ministry of Agriculture, Irrigation and Livestock Directorate		
	Mr. Salman Ali Sadiq	Chief, Provincial Ministry of Rehabilitation and Rural Development Directorate		
	Mr. Mohammad Ebrahim Sharifi	Provincial Ministry of Energy and Water Directorate		
	Mr. Alimada	Provincial		

	Name	Position	Phone:	Email:
	Sahel	Environmental Protection Agency		

A 7.2 Consultations undertaken by the IC.

USGS AgroMeteorology Programme (AgroMet)

29 June 2011

AgroMet programme representative: **Mohammad Fahim Zaheer [MFZ]**, USGS Liaison in Afghanistan.

Also present:

James Reeler [JR], International Consultant (UNEP)

Chiranjibi Gautam [CG], EIA expert & LDCF Project Officer (UNEP)

JR introduced the LDCF project and its objectives, and invited MFZ to provide some background on the AgroMet programme to see whether the LDCF project could add value to the current interventions. MFZ provided a comprehensive background of the available climate data, data gathering capacity and predictive ability of Afghanistan, including AMA, ISAF, MAIL and the AgroMet programme. He pointed out that there was a significant gap in knowledge and capacity to predict both climate and weather impacts, and that any contributions made by the LDCF project would be invaluable. He pointed out that the AgroMet programme was due to end in 2011, but that there might be additional funding from another source to enable it to expand¹²⁶. He further provided detail on the historical availability of data in Afghanistan. JR agreed that the AgroMet programme was currently providing a valuable service to Afghanistan, and that it formed a good base upon which the LDCF project might be able to expand should it continue operating for an extended period.

Afghan Meteorological Authority (AMA) - housed within the Ministry of Transport and Civil Aviation

30 June 2011

AMA representative: **Mohammad Ishaq Noori [MIN]**; Head of the AMA.

Also present:

James Reeler [JR], International Consultant (UNEP)

Chiranjibi Gautam [CG], EIA expert & LDCF Project Officer (UNEP)

Everyone introduced themselves, and JR provided a background for the LDCF project, including its proposed goals and objectives. MIH welcomed the project, and provided background on the operations of the AMA. He said that the AMA is currently severely lacking in capacity, and had no electronic weather records (all records are kept in ledgers, many of which were lost during the many years of instability). The AMA has no computers, and all weather prediction is presently done using data gathered from five stations, using manual methods. He requested the LDCF project to supply additional infrastructure and training to enhance the effectiveness of the AMA. He pointed out that the WMO had promised additional funding to provide this infrastructure, but that the agreement had not yet been formalized. JR and CG agreed that building capacity within the AMA should be a key priority for the LDCF project, since it is essential for the developing of vulnerability maps for Afghanistan. They requested that once the agreement with WMO was formalized MIH

¹²⁶ At a subsequent meeting with the AMA, the NC obtained a list of new funding that AMA was promised for 2012, which included an expansion of the AgroMet programme under the auspices of the AMA and funded by the WMO. This has been selected as a baseline programme, which will provide co-financing for the LDCF project.

should provide details to allow planning for synergies between the two projects, ensuring that LDCF intervention would be additional to the current WMO input¹²⁷.

UK Department for International Development (DFID)

30 June 2011

DFID representative: **Anna Balance** [AB] Livelihoods adviser for DFID, Afghanistan.

Also present:

James Reeler [JR], International Consultant (UNEP)

Andrew Scanlon [AS], (UNEP)

AS introduced everyone, and asked JR to provide some background for the project. JR introduced the LDCF project, and explained that he was scoping other activities being undertaken in the region to investigate the potential for the LDCF project to build on current activities. AB replied that DFID had a strong climate change focus to its development assistance, and all projects have a CC component. However, the majority of the DFID baseline activities are consultative, and have a strong focus on the establishment of small businesses. In addition, DFID provides consultative and policy support to a large number of other programmes currently being executed in Afghanistan such as the NSP, Civilian Technical Assistance Programme (CTAP), and change management programmes within government. It was decided that there was not much potential for building upon these operations, but agreed that DFID would be a useful partner for the LDCF project given its experience in some of the proposed areas in which the LDCF would be operating.

Aga Khan Foundation (AKF)

4 June 2011

AKF representative: **Andrew Billingsley** [AB]; AKF Project Manager for Badakhshan.

Also present:

James Reeler [JR], International Consultant (UNEP)

Andrew Scanlon [AS], (UNEP)

AS introduced everyone, and proposed that AB describe the situation on the ground in Badakhshan, since the IC and NCs had not been able to visit any sites in the area yet due to security concerns. AB provided background on the community-based natural resource management and agricultural programmes being executed by AKF in Badakhshan. He also described the area itself, detailing the frequent issues that arise over land tenure as the nomadic Kuchi are often pushed out of areas in which they used to graze their animals. He also pointed out that the unavailability of fodder led people to graze slopes very early in the year, which impaired the growth of many plants – later grazing did not have such a significant impact. The fragility of the upper catchment areas is of particular concern, and protection or comprehensive management of these areas would likely ensure the sustaining of ecosystem benefits for many downstream areas. JR thanked AB for his insights, and agreed that this information would be invaluable in determining relevant areas and activities to undertake in Badakhshan.

Afghanistan National Disaster Management Association (ANDMA)

10 December 2011

ANDMA representative: **Eng. Mohammad Sidiq Hassani** [MSH], Director of Policy and Coordination (ANDMA)

Also present:

¹²⁷ At a subsequent meeting with MIH, the NC obtained a list of the current funding committed to AMA by the WMO through the AgroMet and RAMA projects. These projects will provide baseline co-finance for the LDCF project.

James Reeler [JR], International Consultant (UNEP)
Ernie Wijangco [EW], CBNRM Expert (UNEP)
Chiranjibi Gautam [CG], EIA expert & LDCF Project Officer (UNEP)
Man B. Thapa [MBT], Comprehensive Disaster Risk Reduction Project (CDRRP)
Coordinator (UNDP)

Everyone introduced themselves, and MBT asked JR to start the meeting. JR introduced the LDCF project, detailing the goals of the project and focussing particularly on the importance of the integration of ANDMA into the project. He detailed the outputs relevant to ANDMA, including the establishment of an early warning system for climate and climate change-related disasters, as well as the empowering of AMA to provide such information in a timely manner. The particular focus of the EWS would be in the four priority provinces initially, with the potential to provide lessons learned and procedures for the national rollout (this latter to be undertaken by ANDMA separately from the LDCF project).

MSH responded that at present there is no EWS in place within ANDMA. There are provincial officers and regular communication between the central office and the provinces, but there is no formalised structure. In addition, there is no means of providing information to communities (the “last mile” is missing). At the time, there was not sufficient funding or national capacity to establish an EWS. He welcomed the prospect of a project that would assist with the establishment of a functioning EWS.

MBT detailed the progress to date of the CDRRP funded by UNDP, including the establishment of emergency operations centres in each province, with 24 hour communication with the central office. The CDRRP ends in December 2011, and there is no follow-up funding proposed at present, which means that ANDMA may not be able to increase capacity at present. He said that if the LDCF could provide SOPs for an EWS, and trial a functioning EWS in the priority provinces (as well as provide training for the relevant ANDMA staff), this would greatly assist in the establishment of a national EWS. This was seconded by MSH.

JR said that he would provide a 1-page brief of the project, focussing particularly on the relevance of ANDMA. He proposed that ANDMA would interact with the project at the steering committee level, which MSH. He also asked that a formal letter from ANDMA be signed to detail the proposed interaction between the LDCF project and ANDMA’s baseline operations, which would be prepared by CG & JR if required. MSH agreed that this was necessary, and undertook to ensure such a letter was provided.

National Solidarity Programme (NSP) in the Ministry of Rural Rehabilitation and Development (MRRD)

10 December 2011

NSP representative: **Mahmood Kahwar** [MK], Donor Relations Manager (NSP)

Also present:

James Reeler [JR], International Consultant (UNEP)
Ernie Wijangco [EW], CBNRM Expert (UNEP)
Chiranjibi Gautam [CG], EIA expert & LDCF Project Officer (UNEP)
Andrew Scanlon [AS], (UNEP)

EW performed introductions. AS then provided an overview of the LDCF project, detailing how the upstream operations to improve water infiltration, regulate water flow and reduce the incidence of flooding would ensure that the current operations of the NSP would be sustainable under conditions of climate change. The particular NSP operations that would likely benefit are the extensive downstream irrigation plans in both Bamyan and Badakhshan, as well as the current micro-hydro plants in Bamyan and the planned plants in Daykundi.

MK agreed that this was a valuable contribution, and he mentioned that the NSP was hoping to introduce some form of watershed-level community-based natural resource management, but it did not have the capacity to do so at the time. He welcomed the interaction with the LDCF project, and looked forward to further interaction.

JR responded that the LDCF project hoped to make use of the NSP's local community structures such as the community development councils (CDCs) to ensure that the present work was capitalised upon.

MK agreed that this was a useful step, and responded that many other governmental agencies and NGOs were capitalising on the formation of the CDCs, since it provided a single route of entry to the communities, rather than interacting with various *shuras*, local authorities, women's groups and other administrative structures. The NSP is in the process of formalising the CDCs into village councils in some areas in order to entrench the structures and ensure that they are self-sufficient after the end of the NSP process. MK also asserted that MRRD was keen to cooperate with NEPA and MAIL in order to promote climate change adaptation.

JR provided a one-page synopsis of the LDCF project and outlined how it proposed to interact with the NSP. He also requested that MK assisted in procuring a letter from appropriate authorities within the MRRD to formalise the interaction between the LDCF project and the NSP. MK replied that he would do so once he had discussed the matter further with appropriate individuals within the MRRD.

International Center for Agricultural Research in Dry Areas (ICARDA)

06 December 2011

ICARDA representative: **Dr Javed Rizvi** [DJR]

Also present:

James Reeler [JR], International Consultant (UNEP)

Ernie Wijangco [EW], CBNRM Expert (UNEP)

Chiranjibi Gautam [CG], EIA expert & LDCF Project Officer (UNEP)

Andrew Scanlon [AS], (UNEP)

The meeting was opened with introductions. DJR gave a brief overview of the structures of CGIAR, and the 15 independent directorates, of which ICARDA is one. He then detailed the specific focus of ICARDA, and the activities that they are undertaking at present in Afghanistan, including research into drought-resilient species, development of best practices in dryland agriculture, seed production for drought resilient species, and on-farm water utilization and the introduction of supplementary irrigation.

AS pointed out that many of these activities are exactly what the LDCF project is hoping to undertake in Balkh province. It is understood that MAIL currently has limited capability to undertake such research, and that therefore the undertaking of operations in Balkh province would be additional. He asked the extent of ICARDA's current dryland operations in Afghanistan.

DJR replied that at present they had 50 to 80 staff in five provinces who were working with their MAIL counterparts, although they are not presently operating in Balkh to a great extent. They have prepared some field guides, but have not yet managed to significantly affect national agricultural practices. JR suggested that combined activities within Balkh province to trial and demonstrate dryland agricultural activities to promote climate change adaptation would be highly beneficial. DJR highlighted some potential operations that might be feasible if ICARDA were to assist in the implementation.

JR undertook to discuss these interventions within the team and to respond to DJR within two days about to the recommended actions that the LDCF project hopes to undertake in Balkh province, as well as national training exercises. A further meeting was established for December 13th in order to examine the possibilities of using ICARDA as a preferred service provider for the research and dryland activities in Balkh.

A 7.3 Inception Workshop.

Building Adaptive Capacity to climate change in Afghanistan

Hotel Serina, Kabul

13 April, 2011

Inception Workshop Report

Session I: Inaugural Session:

Dr. Abbas Basir, Deputy Director General, National Environmental Protection Agency (NEPA), chaired the inaugural session of the workshop. The workshop was opened with the recitation of a few verses from the Holy Quran.

Dr. Basir welcomed all the participants and expressed his appreciation of the large media presence in the opening session. Some of the key points made by Dr. Basir in the session are:

- Afghanistan is already fighting with many environmental problems and the likely impacts of climate change will likely exacerbate the prevailing issues.
- Afghanistan is party to the United Nations Framework Convention on Climate Change (UNFCCC) and regularly shows its commitment in many regional and global forums. It has been identified as a country with a high vulnerability to climate change.
- The UNFCCC provides many opportunities to least developed and developing countries in the form of the LDCF, SCCF and Adaptation Fund and Afghanistan must develop its national capacity to access these funds and maximize the benefits, thereby enhancing the ability of the Afghan people to adapt to the impacts of climate change.
- Afghanistan has developed a NAPA (National Adaptation Programme of Action) and an NCSA (National Capacity Self-Assessment for Global Environmental Management). The project development under discussion is the initiation of the NAPA implementation.
- In the near future, there will be significant amount of funding available (over US\$ 100 billion) to promote climate change adaptation in least developed countries.

Dr. Basir thanked GEF and UNEP for their continued support. He also specifically highlighted the role of media in creating awareness of environmental challenges and thanked them for their wide coverage.

Mr. Abdul Wali Modaqiq, officer in charge of UNEP/Afghanistan thanked NEPA and all stakeholders for their active participation in the workshop. Mr. Modaqiq briefly highlighted work of UNEP since 2002 and assured NEPA and GIRoA of the continued UNEP support in dealing with the country's environmental challenges.

Mr. Modaqiq also briefly explained the NAPA/NCSA process and stressed that this planned project is the beginning of the NAPA implementation. The national capacity developed in the

process will enhance Afghanistan's ability to capitalise on the available opportunities in the best interest of Afghan people. Briefly highlighting the project development process, he stated that UNEP and GEF always support nationally driven initiatives and requested that all stakeholders continue their active participation in the process.

Mr. Modaqiq thanked all the stakeholders and media and expressed his hope that with active participation of all, the project document will be developed and submitted by August 2011. The project implementation will begin in early 2012.

Dr. Basir closed the inaugural session and thanked the media for their presence.

Session II: Technical Session

Dr. Abbas Basir chaired the technical session. Self-introduction of participants followed.

The technical session had four presentations:

Presentation One: Overview of climate change and its likely effects on water in Afghanistan, by Mr. Ghulam Mohammad Mallikeyar, Senior Adviser, NEPA

Highlights of the presentation included:

- Climate change is the biggest threat of the century
- Threats to water resources
- Adverse effects and climatic risks
- Factors contributing climate change
- An overview of potential risks on water resources in Afghanistan (e.g. varying water flow in Kabul river, changing precipitation patterns, excessive rain and flood events, cold snaps)
- The way forward (water management, agricultural research, livestock improvements, horticulture, rangeland management, and the national strategy for climate change adaptation, land and watershed management)
- The need for financial resources for adaption measures in water resources, agriculture, public health, etc.
- Afghanistan national initiatives

Questions:

A participant asked why the recent incidence of floods had increased in comparison to previous decades.

Answers:

Mr. Mallikeyar answered that the increase was principally driven by the significant loss in forest and rangeland cover. Most of these areas were converted to agricultural land, and the uncertainty of ongoing conflict had intensified this process.

Presentation Two: Overview of the National Adaptation Program of Action (NAPA) , by Mr. Ghulam Hassan Amiry, Director, Climate Change Division, NEPA

Highlights of the presentation included:

- A brief introduction to the history of the NAPA and highlights of the development process in Afghanistan
- The Napa framework
- The climatic situation and key climatic hazards
- The vision and objectives of the NAPA
- Potential barriers to implementation and the identification of key adaptation needs
- Sectors and groups in need of adaptation and potential adaptation options
- First project –improved water management and use efficiency
- Second project – community-based watershed management

Questions:

Professor Mohammad Hassan Hamid stated that he was not aware of the NAPA process and also pointed some technical errors in the report.

Answers:

Mr. Abdul Wali Modaqiq, who was the project manager for NAPA explained that the academic representation in the NAPA working groups was guided by nomination from the Ministry of Higher Education. He stated that the technical errors will be corrected for future reference.

Presentation Three: The principles of LDCF and preparing the project document, by Mr. Chiranjibi Gautam and Mr. Abdul Wali Modaqiq, UNEP/Afghanistan

Highlights of the presentation included:

- Background to the LDCF (a development focused fund to develop and implement NAPAs in least developed countries)
- Guiding principles of the LDCF
- The project development process (PPG phase, PIF objectives and outcomes)
- Inception workshop goals and next steps
- Key concepts on baseline, additionalities and adaptation
- Examples of additionality
- Critical text required for the project document
- Climate change: an integrated framework
- A bird's-eye view of adaptation

Questions:

1. Will it be possible to reach all vulnerable communities through this project?
2. Prof Saifi asked about the possibilities of the project establishing an early warning system.

Answers:

1. Mr. Wali Modaqiq explained that the objectives of the LDCF are to build on baseline activities, creating additional benefits and increasing climate change resilience. This project

is only the beginning of the adaptation to climate change in Afghanistan. It is a pilot that will create a basis for future projects to cover more vulnerable communities.

2. Mr Gautam responded to Prof Saifi's question by pointing out that an Early Warning System could be included as one of the outputs of Outcome 1 as described in the PIF.

Presentation Four: Ecosystem Based Adaptation (EBA), Water Management and Agriculture, by Professor Ghulam Naqshband Nasiri, National Consultant

Highlights of the presentation included:

- An overview of ecosystem – based adaptation
- area description of possible biodiversity and ecosystem gains
- Ecosystem-based adaptation and agriculture
- Ecosystem-based adaptation and water management
- The way forward

Presentation Five: Presentation of the Work Plan, by Mr. Chiranjibi Gautam and Mr. Wali Modaqiq UNEP/Afghanistan

The timeline for the project development process was explained, highlighting activities and the major outcomes. Key milestones presented to be achieved by August 2011 included:

- Conducting the inception workshop
- Completion of the site Selection process
- Capacity assessment of national institutions and local communities
- Development of first project documents
- Development of co-financing and finalization of the project management arrangements
- Development of second draft with feedback from all stakeholders, validation and submission

There were no questions on the work-plan and everybody agreed with the plan.

Session III: Group Work and Discussion

Mr. Gautam and Mr. Modaqiq informed the stakeholders that the objectives of the group work were to provide recommendations of priority provinces for demonstration of adaptation measures and to decide upon criteria for selection of sites at which project activities should be undertaken

Mr. Modaqiq requested that all participants focus on criteria relevant to water resources sector, and their impact on agriculture and livelihoods. Each group could also prioritise one province from each region. Participants were briefed on some of the site selection criteria used in other countries for development of LDCF adaptation projects. The participants agreed that each group would develop their own criteria and select provinces. Participants also agreed that combining the lists of criteria developed by different groups would provide the most robust means of selecting sites. The participants were divided into three groups and Dr. Basir, Mr. Gautam, and Mr. Modaqiq each facilitated a single group. Mr. Hamidullah and Prof. Nasiri recorded and facilitated the discussion.

Group I

Members: Dr. Mohammad Husain Hamid, Mr. Mulawy Abdul Maruf Nail, Mr. Abdul Basir Azime, Mr. Abdul Qayum and Mr. Mariam Ahmadi.

Methodology Adopted: The group focused on those provinces likely to experience the most significant climate change impacts on water resources. Participants also referred to the NAPA report.

Shortlisted Provinces: Daykundi, Nemroz, Badghis, Faryab, Jawzjan, Farah, and Ghor.

Criteria Used: Poverty, water scarcity, agriculture, security, geography, population density, drought occurrence, natural disaster occurrence, soil erosion, population pressure, human health and livestock health.

Group II

Members: Eng. Mohammad Ali Behsoodi, Mr. Ghulam Haider Haidery, Eng. Safiullah Noori, Mr. Ahmad sha Tahiry, Mr. Mohammad Sediq Elham, Mrs. Shakila Yusifi and Mr. Abdul Azime Doosti.

Methodology Adopted: The group focused on those provinces likely to experience the most significant climate change impacts on water resources. Participants also referred to the NAPA report.

Shortlisted Provinces: Daykundi, Nemroz, Badghis, Ghor and Takhar.

Criteria Used: Poverty, water shortage, health, job opportunities, population density, education, agriculture, public awareness, climate, and natural resources.

Group III

Members: Mr. Ghulam Mohammad Malikkeyar, Mr. Said Faruq Hibat, Mr. Siful Rahman Saify, Mr. Mohammad Omer Pakfer, Mrs. Aria Neyaesh and Mr. Habibullah Shewani.

Methodology Adopted: The group focused on those provinces likely to experience the most significant climate change impacts on water resources. It was agreed that provinces in the north region, central highland region and north east region are most important from a water resources perspective. Seven provinces from these regions were selected unanimously. Participants also referred to the NAPA report.

Shortlisted Provinces: Daykundi, Nemroz, Badghis, Ghor and Takhar.

Criteria Used: Poverty, security, awareness, agriculture, water availability, unemployment, population pressure, forest resources, infrastructure, health, climatic condition, geography and biodiversity.

Analysis of Group Work

Shortlisted provinces

The provinces short-listed by each group are presented in the following table.

Group/Priority	Group I	Group II	Group III
Priority 1	Daykundi	Daykundi	Daykundi
Priority 2	Badghis	Badghis	Bamyan
Priority 3	Ghor	Ghor	Badakshan
Priority 4	Faryab	Nemroz	Takhar
Priority 5	Nemroz	Thakhar	Baglan
Priority 6	Farah	-	Balkh
Priority 7	Jawzjan	-	Kunduz

The first priority of all three groups was Daykundi in the central highland region. Badghis in the north-west and Ghor in the central were the 2nd and 3rd priority for both Groups I and II, and Nemroz was 5th for Group I and 4th for Group II. None of these provinces were short-listed by Group III. Takhar was ranked 4th by Group III and 5th by Group II, but was not listed by Group I.

The remaining provinces were only selected by a single group, and are consequently lower priority. These include Bamyan, Badakshan, Baglan, Balkh and Kunduz, which were shortlisted by Group III, and Farah and Jawzjan which were shortlisted by Group I.

Criteria used by all the groups:

Group I	Group II	Group III
Poverty	Poverty	Poverty
Agriculture	Agriculture	Agriculture
Water Scarcity	Public Awareness	Awareness
Drought	Water Shortage	Water shortage
Natural Disaster	Job opportunity	Unemployment
Population Pressure	Population Density	Population Pressure
District Density	Natural Resources	Forest Resources
		Infrastructure
Health (human)	Health	Health
Health (livestock)	Climate	Climatic Condition
Geography (access to area)		Geography (access to area)
Soil erosion		Biodiversity
Security	Education	Security

The criteria that will be used for site selection are based on those highlighted by the three groups. In some cases they are grouped for ease of use, and may be elaborated where necessary. The proposed list of site selection criteria is detailed below.

Criteria for Site Selection:

Poverty, agricultural dependence, water shortage, population pressure, ,human health, climatic conditions (drought), public awareness and education, unemployment, incidence of natural resources (forest resources, biodiversity, etc.), ,security, natural disasters and ,geography (ease of access and infrastructural development).

Group Discussion and Recommendation:

After presentation from all three groups, Dr. Basir opened the floor for discussion. He explained that in order to further narrow down the provinces for identifying potential demonstration sites and likely interventions, the project development team will consider::

- Baseline projects identified through consultation with key stakeholders that are either planned or ongoing in the provinces. Provinces in which the project will have the highest effects will be prioritised.
- The criteria identified by the three workshop groups, including additional criteria where necessary.

Closing:

Dr. Basir thanked all the participants for their valuable contributions. He said that he hoped that the participation and cooperation in future stakeholder consultations in the process of finalization of the project document would be just as good.

Participants

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6	Sifurahman Saify	Hydro metrology	Head of Environment Department	N/A
7	Shakila Yousfi	Ministry of Women's Affairs	Member of Culture	N/A
8	Jalal Noorani	Ministry of Information & Culture	Consultant	N/A
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S. No	Name	Organization	Designation	Email
10	Eng. Mohammad Pakfer	Ministry of Urban Development (MUD)	Head of water sanitation & canalization	N/A
11	Mulawi Abdul Maruf	Ministry of Hajj and Religious Affairs	Member of Mosque Presidency	
12	Mohammad Allam Andarabi	Ministry of Finance	Head of Central Customs Lab	
13	Haji Abdul Qaum	Ministry of the Interior	Kabul Traffic Planning Department	
14	Abdul Basir Azam	Science Academy	Researcher Assistant	
15	Professor Naqshband Nasri	Kabul University Faculty of Agriculture	Professor of Agriculture faculty	
16	Professor Abdul Ghyas Safi	Kabul University Faculty of Geoscience	Head of Hydrometeorology Department	
17	Professor Mohammad Hassan Hamid	Kabul Polytechnic University	Head of Department of Water Supply & Environmental Engineering	
18	Maryam Ahmadi	Provincial Council	Women's Council Coordinator	
19	Sayed Faruq Hibat	Kabul Municipality	Head of Environment Department	N/A
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Media representatives

1. Shamshad TV
2. Noorin TV
3. Nationl TV
4. Aryana TV
5. Aena TV
6. Negah TV
7. Emroz TV
8. Kleed Radio
9. Azadi Radio
10. Eslah Newspaper

Appendix 8 Example scoring sheet for site selection within provinces.

Scoring sheet for site selection	District								
	Ishtarlay	Kajran	Khedir	Kiti	Miramor	Nili	Sangi Takht	Shahristan	
1. Vulnerability to climate change - i.e. basic needs compromised	0	0	0	0	0	0	0	0	
1.1 Poverty level (1 = low poverty, 10 = high poverty)									
1.2 Water shortage (1 = plentiful water, 10 = dire shortage)									
1.3 Current incidence of climatic disasters (drought, flooding, etc) (1 = extremely rare, 10 = common)									
1.4 Population density (1 = low, 10 = high)									
1.5 Level of land degradation (1 = low, 10 = high)									
1.6 Level of dependence on subsistence agriculture (1 = low, 10 = complete)									
2. Physical feasibility of adaptation interventions	0	0	0	0	0	0	0	0	
2.1 Ease of access (1 = low, 10 = high)									
2.2 Communication and transport infrastructure (1 = low, 10 = high)									
3. Local implementation capacity	0	0	0	0	0	0	0	0	
3.1 District environmental committees (1 = none, 10 = well organised & active)									
3.2 Community environmental committees (1 = none, 10 = well organised & active)									
3.3 Implementing agency familiarity with site (1 = none, 10 = good knowledge & community linkages)									
3.4 Local implementing agency's knowledge of ecosystems-based adaptation (1 = low, 10 = high)									
4. Local interest (Public awareness & concern) (1 = no community knowledge of climate change, 10 = well educated community)									
5. Synergies with existing interventions (1 = no current interventions, 10 = good potential for synergies)									
6. Security (1 = current insurgency, 10 = perfectly safe)									
Total	0	0	0	0	0	0	0	0	

Appendix 9 Composition of National Climate Change Committee developed to coordinate climate change policy during the development of the Initial National Communication to the UNFCCC.

S. No.	Name	NCCC, Status	Designation	Organization
1	Mr. Ghulam Mohd Malikyar	Chairperson	Deputy Director General	NEPA
2	Mr. Gul Baharam Halimi	Member		Ministry of Foreign Affairs
3	Eng. Ezatullah Sadiqi	Member	Chief, Industrial Parks	AISA
4	Prof. Naqshband Naseery	Member	Professor	Kabul University
5	Eng. Mohd Pakfer	Member	Water and Sanitation Officer	Ministry of Urban Development
6	Mr. Mohd Asif Ferogh	Member		Kabul Provincial Council
7	Eng. Ghulam Sarwar	Member	Petroleum Product Standard Expert	ANSA
8	Mr. Abdul Ghayas Safi	Member	Deputy Chief, Faculty of Geology	Kabul University
9	Mr. Sohila Barakzai	Member	Head, Agriculture Department	Ministry of Economy
10	Mr. Hafizulla Nooristani	Member	Chief, Administrative Division	Ministry of Trade
11	Mr. Enayatullah	Member	Head, Fire Control Division	Ministry of Interior
12	Mr. Mohd Hasim Barakzai	Member	Director General, Dept. of NRM	Ministry of Agriculture, Irrigation and Livestock
13	Dr. Sarif Amiri	Member	Chief, AIRD	Ministry of Reconstruction and Rural Development
14	Mr. Noorullah Haq	Member	Chief, Administrative Division	Ministry of Communication
15	Mr. Alhaz Ali Mohamaad	Member	Chief, Planning Division	Ministry of Labor
16	Mr. Waheed Zalal	Member	Director, Public Awareness Division	NEPA

S. No.	Name	NCCC, Status	Designation	Organization
17	Mr. Ghulam Hasan Amiry	Member	Chief, CC Division	NEPA
18	Mr. Naqibullah Nayel	Member	Focal Point, INC, CC Division	NEPA
19	Mr. Mohd Yasin Noori	Member	Officer, CC Division	NEPA
20	Ms. Arya Niaesh	Member	Officer, CC Division	NEPA
21	Mr. Mohibullah Fazli	Member	Officer, CC Division	NEPA
22	Mr. Naqubullah Sadiqi	Member	Officer, CC Division	NEPA
23	Mr. Chiranjibi Gautam	Invitee	INC Task Officer	UNEP
24	Mr. Hamidullah Akbary	Invitee	INC Coordinator	UNEP

A 9.1 TORs of National Climate Change Committee (NCCC) for the INC project.

The National Climate Change Committee (NCCC) will be responsible for supervising the implementation of the project. This will include evaluating project outputs to insure that project activities are being carried in a timely manner and to acceptable levels of quality, and reviewing the status and needs of countries during the project. The NCCC will provide a policy and technical platform for the project and in that context it will have the following duties:

- Providing operational directives to the national communication project management team (PMT, based in NEPA);
- Facilitating political inclusion in the national climate change process, particularly to encourage appropriate policy development to enable effective national responses to climate change;
- Informing the relevant departments on climate change issues, particularly with regard to climate change issues in sectoral policies and other department plans;
- Recognizing and encouraging human resource development in the field of scientific research and development, including the formulation of projects and joint projects, particularly regarding climate change;
- Establishing and coordinating the work of the technical working group (TWGs);
- Ensuring that the appropriate climate change acts /legislation are enacted;
- Endorsing the detailed work plan, thematic reports, final INC Report and Action plans; and
- Proposing that the government report to the COP through the UNFCCC secretariat.

Appendix 10 Project linkages to be established and maintained by the LDCF project.

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
Multiannual Indicative Programme 2011-2013	<p>The MIP is a multi-sectoral initiative focusing on rural development, governance and rule of law, and on health. The objectives of the rural development aspect of the MIP are to:</p> <ul style="list-style-type: none"> • “Increase the contribution of agriculture and rural development to the national economy, including through diversification of the rural economy and supporting the role of the private sector”. • “Increase resilience in the face of adverse climatic conditions and to increase food security”. • “Improve participative development processes and increase institutional capacities toward a sector-wide approach to agriculture and rural development, toward diversification of the rural economy and an enhanced role of the private sector.” <p>Irrigation facilities for over 150 000 ha of land are being improved. Community-based natural resource management in the north-eastern Panj-Amu River Basin is being reinforced. A new approach to water basin management has been implemented and extended to national level through the Water Law promulgated in 2009. The national agriculture system is being strengthened and has seen an increase in high quality output from the seed and fruit tree nursery industry and a functioning nationwide veterinary service.</p>	EC	2007-2013	310-338 (out of 845) **	
River Basin Management (as a component of the Multiannual Indicative Programme)	<p>The River Basin Management project covers the rehabilitation of irrigation infrastructure, water management, catchment area protection and the creation of River Basin Agencies. Assistance has been extended to the Ministry of Energy and Water and private contractors in the rehabilitation of 65 major hydraulic schemes covering an area of 145,000 Ha.</p> <p>Project activities have concentrated on the Panj-Amu river basin in Northern Afghanistan and in particular on six of</p>		2007-2013		http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
	its sub-basins, which represent 40% of the Afghan water resource. In protection of upper catchments across 10 watersheds, 850,000 trees were planted and 3,000 ha of pasture and rangeland protected.				
Animal Health (as a component of the Multiannual Indicative Programme)	The Animal Health component of the MIP includes providing technical assistance to the Ministry of Agriculture, Irrigation and Livestock (MAIL) to build delivery capacity in epidemiology surveillance and animal health service provision. This includes the rehabilitation of the central veterinary laboratory, border inspection posts, public veterinary offices and laboratories, an animal vaccine production laboratory and privatisation of over 200 veterinary services providers.		2007-2013		http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf
Horticulture and Seeds Industry (as a component of the Multiannual Indicative Programme)	<p>The Horticulture and Seeds component of the MIP includes providing technical assistance to the MAIL for:</p> <ul style="list-style-type: none"> • horticulture policy reform; • government research farms; • completion of a 'National Collection of Fruit and Nut Varieties'; • dissemination of quality planting and grafting material; • support to farmers and ~1,000 nursery growers in 58 districts of 21 provinces for tree nursery and orchard development; • the emergence of professional associations such as nursery growers' associations; • a National Almond Industry Association; and • an umbrella organisation aiming at coordinating the nationwide development of the horticulture industry. <p>Further support to the MAIL is provided through the UN (FAO) for a Variety and Seed Industry Development Project to improve the productivity of major staple crops and ensuring greater food security.</p>		2007-2013	72.6 **	http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
	The Agricultural Research Institute of Afghanistan has also been assisted in the development and production of seed varieties.				
Environment (as a component of the Multiannual Indicative Programme)	The objectives of the Environment component of the MIP include strengthening natural resource management, the control of current over-exploitation of the natural resource base, support to community institutions for the management of natural resources and increasing public and Government awareness. This component of the MIP is implemented in partnership with the National Environmental Protection Agency (NEPA) and MAIL's Natural Resources Division (through its Capacity and Institution Building for Environmental Management in Afghanistan program, implemented by UNEP).		2007-2013	6.9 **	http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf
Data & Surveys (as a component of the Multiannual Indicative Programme)	This component of the MIP provides support to the Ministry of Rural Rehabilitation and Development (MRRD) and the Central Statistical Office (CSO) to carry out nationwide surveys on vulnerability, food insecurity and poverty. Data obtained will assist in tracking progress made in various fields such as poverty, labour, population, situation of women, education, health or agriculture.		2007-2013	8.03 **	http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf
Rural Development-Infrastructure (as a component of the Multiannual Indicative Programme)	The objective of this component of the MIP is to invest in traditional rural development programmes, local governance, technical cooperation and research. National priority programmes within agriculture and rural development will be addressed based on a comprehensive approach, through the establishment of a coordinating cluster comprising the four main ministries (Agriculture, Irrigation and Livestock; Rural Rehabilitation and Development; Energy and Water; Counter Narcotics). Funds will be allocated across National Priority Programmes that address rural development		2007-2013		http://eeas.europa.eu/delegations/afghanistan/documents/content/state_of_play_jan_2011_en.pdf
Support the Fruit Tree Nursery Industry in	This project supports the development of a profitable private sector fruit tree nursery industry to meet the needs	EU in partnership	2011-2014	72.6 **	http://www.eeas.europa.eu/delegations/afghanistan/press_corner

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
the Western, Southern and South-eastern regions of Afghanistan (as a component of the 'EU Horticulture and Seeds Industry Programme')	of the rapidly expanding perennial horticulture industry in Afghanistan. It addresses the need for improved production capacity and management systems among Nursery Growers Associations (NGAs) and the need to support nursery growers to improve their technical skills.	with Afghanistan-based NGOs (GPFA, CHA, ADA, SAB, MADERA)			http://all_news/news/2011/20110303_01_en.htm http://reliefweb.int/sites/reliefweb.int/files/resources/00A3B391ACD04743C12578480039533E-Full_Report.pdf
Strengthened Approaches for the Integration of Sustainable Environmental Management in Afghanistan (SAISEM)	The objective of this project is to build institutional capacity of the Afghan government and communities for sustainable environment management, and to improve the capability of national and local governance bodies for natural resources and disaster management.	UNDP, FAO, UNEP		5	http://www.undp.org.af/ Projects/Report 2011/saisem/ SAISEM_00062490_1st%20Q_QPR_%204%20July%202011.pdf
Helmand Growth Programme (HGP)	The objective of the HGP is to make licit markets in Helmand province more effective by balancing the differing social and economic needs in different districts with the UK's counter narcotics programme and military operations in an unstable security environment. A central feature of the programme will be to build capacity to deliver key services such as power and irrigation effectively.	DfID	2009-2014	36.6 ***	http://projects.dfid.gov.uk/project.aspx?Project=201023
Increasing Agricultural Potential in Afghanistan	An objective of this programme is to develop a more productive and commercially-oriented agriculture sector that accelerates growth of the rural economy. This programmed will focus on agricultural policy and administrative management, development of agriculture and livestock management.	DfID	2009-2014	4.26 ***	http://projects.dfid.gov.uk/project.aspx?Project=201035
PEACE Project	Objectives of this project are to "promote the development of the livestock sector by supporting pastoral land tenure conflict	USAID	2006-2012	6.7	http://afghanistan.usaid.gov/en/

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
	<p>resolution, introduction of new technologies to improve rangeland management, livestock production, and marketing. This project also builds the capacity of government personnel responsible for planning and implementing livestock development and rangeland resource management.”</p> <p>Project components are:</p> <ul style="list-style-type: none"> • “a satellite-based Livestock Early Warning System providing information on forage conditions for herders and rangeland decision makers; • a livestock nutritional profiling system, which is a risk management tool generating data on forage quality; • livestock market information network, including price and quantity to give pastoralists access to an improved market; and • pastoral conflict resolution and rural land tenure policy which will use a participatory approach to resolve resource use and access conflicts”. 				USAID/Activity/3/Pastoral_Engagement_Adaptation_and_Capacity_Enhancement_PEACE_Project
CHAMP (commercial horticulture and agricultural marketing project)	Objectives of the CHAMP project are to reduce poverty among rural Afghan farmers by increasing the productivity of existing vineyards and the conversion of former wheat, poppy, and cornfields to more profitable orchards and vineyards. In the southern provinces of Kandahar, Uruzgan, Hilmand, and Zabul, the project focuses on trellising existing vineyards.	USAID	2010-2014	36	http://afghanistan.usaid.gov/en/USAID/Activity/173/Commercial_Horticulture_and_Agricultural_Marketing_Project_CHAMP
National Emergency Rural Access Project	The project aims to reconstruct and rehabilitate ~2000 km of secondary and tertiary roads, which will reduce travel time to rural schools, health care facilities, and administrative services. It will also launch a pilot rural road maintenance program that will be implemented through the Community Development Councils.	World Bank	2007-2013	112	http://www.worldbank.org/af/WSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/AFGHANISTANEXTN/0,,contentMDK:21312232~pagePK:141137~piPK:141127~theSitePK:305985,00.html

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
International Centre for Integrated Mountain Development (ICIMOD)	The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush-Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. ICIMOD aims to assist mountain people to understand and adapt to climate change.				http://www.icimod.org/
Regional Climate Change Adaptation Knowledge Platform for Asia and Asia Pacific Adaptation Network	The Adaptation Knowledge Platform is a mechanism for sharing information on climate change adaptation and for developing adaptive capacities in Asian countries. The initiative supports research and capacity building, policy making and information assimilation, generation, management and sharing. It will also facilitate climate change adaptation at local, national and regional levels, while working with existing and emerging networks and initiatives.				ClimateAdaptAsia.com
Irrigation Restoration and Development Project	<p>The objective of the Irrigation Restoration and Development Project (IRDP) for Afghanistan is to increase agricultural productivity and production in the project areas.</p> <p>Activities include implementing the national priority program to rehabilitate dilapidated irrigation systems.</p> <p>The IRDP will fund:</p> <ul style="list-style-type: none"> • rehabilitation of irrigation systems covering about 300,000 ha of irrigated areas; • the design and construction of a limited number of multi-purpose small dams and appurtenances and associated irrigation conveyance and distribution systems; • establishment of hydro-meteorological facilities and services; and • technical assistance for project management as well 	World Bank	2011 - 2017	148.7	http://web.worldbank.org/external/projects/main?Projectid=P122235&theSitePK=40941&piPK=64290415&pagePK=64283627&menuPK=64282134&Type=Overview

Project Title	Objective / focus	Responsible Agency	Project Duration	Budget (2010) (million USD)	
	as capacity building of Ministry of Energy and Water (MEW) and beneficiary communities.				
Emergency Infrastructure Rehabilitation and Reconstruction Project (EIRRP – Traditional Irrigation Component)	The objective of the EIRRP is to rehabilitate damaged facilities through the provision of civil works, equipment/material. The EIRRP also provides consulting services for design, supervision of implementation, and evaluation. Irrigation is one component of the project's focal points.	Asian Development Fund	2003-2013	15	http://pid.adb.org/pid/LoanView.htm?projNo=36673&seqNo=01&typeCd=3

Appendix 11 Draft list of multiple-benefit plant species with enhanced adaptation potential for ecosystem management-based adaptation.

Scientific name	Common name	Indigenous	Exotic	Soil Stabilization	Drought tolerant	Soil Fertility	Wind break	Flood tolerant	Plantation/Woodlot	Riparian	Timber	Fuelwood	Charcoal	Edible Fruits/seeds	Medicines	Fodder	Hives (for Honey)	Inter-cropping	Salt tolerance	Fire tolerant	Description of bio-physical parameters
<i>Dalbergia sissoo</i> Roxb. ex DC.	Bombay blackwood	×		×		×	×					×				×				×	Medium to large-sized deciduous tree (~ 30 m tall). Altitude: 0-1500 m; Annual temperature: -4- 45 °C; Annual rainfall: 500-4500 mm. Grows well in wide range of soil types ranging from pure sand and gravel to rich alluvial soil on riverbanks.
<i>Haloxylon persicum</i> - Bunge. ex Boiss.&Buhse.	Salt tree	×		×	×						×	×								×	Small tree (~ 4.5 m tall). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown. Prefers light (sandy) and medium (loamy) soils, requires well-drained soil and can grow in nutritionally poor soil.
<i>Fraxinus xanthoxyloides</i> (G.Don) Wall. ex A.DC	Afghan Ash	×									×	×									Shrub or small tree (~ 7 m tall). Altitude: 1000-2800 m; Mean annual temperature: unknown; Mean annual rainfall: unknown. Found on dry valley slopes with light (sandy),medium (loamy),hard (clay) soil.
<i>Pistacia atlantica</i> Desf.	Persian turpentine tree	×												×	×						Deciduous tree (~ 7 m tall). Altitude: up to 1500 m; Mean annual temperature: unknown; Mean annual rainfall: unknown. Grows on dry hillsides.
<i>Pistacia vera</i> L.	Pistachio	×			×									×	×						Deciduous tree (~ 10 m tall). Altitude: up to 1500 m; Mean annual temperature: -10 °C in winter to 40 °C in summer); Mean annual rainfall: unknown. Prefers well-drained light (sandy) and medium (loamy) soils.
<i>Eleagnus angustifolia</i> L.	Russian olive	×			×	×				×				×	×		×				Thorny shrub or small tree (5-7 m tall). Altitude: up to 3000 m; Mean annual temperature: unknown; Mean annual rainfall: unknown. Prefers light (sandy), medium (loamy) and heavy (clay) soils, requires well-drained soil and can grow in nutritionally poor soil.
<i>Populus nigra</i> L. var. <i>afghanica</i> Aitch. & Hemsl.	Black poplar	×					×			×											Medium-sized to large deciduous tree (20-30 m tall). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown. Prefers moist well-drained light (sandy), medium (loamy) and heavy (clay) soils.
<i>Populus alba</i> L.	White poplar	×									×										Fast growing deciduous tree (~ 20 m). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown. Prefers dry or moist well-drained light (sandy), medium (loamy) and heavy (clay) soils.

Scientific name	Common name	Indigenous	Exotic	Soil Stabilization	Drought tolerant	Soil Fertility	Wind break	Flood tolerant	Plantation/Woodlot	Riparian	Timber	Fuelwood	Charcoal	Edible Fruits/seeds	Medicines	Fodder	Hives (for Honey)	Inter-cropping	Salt tolerance	Fire tolerant	Description of bio-physical parameters
<i>Robinia pseudoacacia</i> L.	False acacia		×	×	×	×	×				×	×					×				Altitude: 200-500 m; Mean annual temperature: unknown; Mean annual rainfall: 1020-1830 mm. Grows on soils rich in humus, well drained, neutral to acidic, in full sun Has been successfully introduced into many parts of the world where the climatic conditions are different from those of its native range.
<i>Sesbania sesban</i> (L.) Merr.	Egyptian riverhemp	×				×		×				×				×					Soft semi or slightly woody tree (1-8 m tall). Altitude: 200-500 m; Mean annual temperature: unknown; Mean annual rainfall: 500-2000 mm. Grows on saline and waterlogged soils.
<i>Tamarix aphylla</i> (L.) Karsten.	Athel tree	×			×		×	×			×	×	×			×	×		×	×	Fast growing moderate-sized evergreen tree (18 m tall). Altitude: 0-1200 m; Annual temperature: 10-50 °C; Annual rainfall: 250-500 mm. Thrives best on loam though also found on stiff clays and sand. Grows more vigorously on land subject to occasional inundation than on land which is never flooded.
<i>Dodonaea angustifolia</i> L. f.	Sand olive	×		×							×	×	×	×	×	×	×				Shrub or tree (2-8 m tall). Altitude: 0-2800 m; Mean annual temperature: unknown; Mean annual rainfall: 450 mm. Grows on rocky sites or poor soils.
<i>Populus euphratica</i> Oliv.	Cottonwood	×		×			×				×	×				×		×	×		Medium-sized to large deciduous tree (~ 15 m tall). Altitude: Up to 4 000 m; Annual temperature: -5 to 52 °C; Annual rainfall: 75-200 mm. Found on rocky and hilly soils. Soils with impeded drainage and little aeration are not suitable.
<i>Parkinsonia aculeata</i> L.	Jerusalem thorn	×		×		×	×				×	×		×	×	×			×		Small spiny tree (4-10 m tall). Altitude: 0-1 300 m; Mean annual temperature: 36 °C; Annual rainfall: 200-1 000 mm. Found on various soils, especially desert gravel and sands along valleys and canyons.
<i>Casuarina junghuhniana</i> Miq.	Forest oak	×				×	×				×	×									Fast-growing deciduous tree (15-25 m tall). Altitude: 550-3 100 m; Annual temperature: 13-28 °C; Annual rainfall: 700-1 500 mm. Grows on a wide range of soils from light volcanic and sandy soils to heavy clays.
<i>Tecoma undulata</i> (Roxb.) G. Don	Desert teak	×		×	×		×				×	×	×		×	×					Deciduous tree (~ m). Altitude: 700-2 300 m; Mean annual temperature: unknown; Annual rainfall: 150-500 mm. Thrives on stabilized sand dunes that experience extreme low and high temperatures.
<i>Citrullus colocynthis</i> (L.) Schrad.	Bitter apple	×		×											×						Perennial herbaceous vine. Altitude: unknown; Mean annual temperature: 22 °C; Annual rainfall: 150-500 mm. Thrives on sandy loam soils.

Scientific name	Common name	Indigenous	Exotic	Soil Stabilization	Drought tolerant	Soil Fertility	Wind break	Flood tolerant	Plantation/Woodlot	Riparian	Timber	Fuelwood	Charcoal	Edible Fruits/seeds	Medicines	Fodder	Hives (for Honey)	Inter-cropping	Salt tolerance	Fire tolerant	Description of bio-physical parameters
<i>Haloxylon ammodendron</i> (C.A.Mey.)Bunge.	Saxaul	×		×	×		×					×							×		Evergreen shrub (~ 2 m tall). Altitude: unknown; Mean annual temperature: unknown; Annual rainfall: unknown. Prefers well-drained light (sandy) and medium (loamy) soils, and can grow in nutritionally poor soil.
<i>Chrysopogon aucheri</i> (Boiss.) Stapf var. <i>quinqueplumis</i> (A. Rich.) Stapf	Aucher's grass	×			×											×					Tufted perennial grass (~ 0.5 m tall). Altitude: unknown; Mean annual temperature: unknown; Annual rainfall: 250-625 mm. Prefers sandy soils or lava ash but grows on rocky ground as well. Grows in the most inhospitable habitats such as rocky slopes and rock fissures.
<i>Themeda anathera</i> (Nees ex Steudel) Hackel.	Red Oat Grass	×		×												×					Densely tufted perennial grass (m tall). Altitude: 700-2300 m; Mean annual temperature: unknown; Mean annual rainfall: unknown.
<i>Pennisetum purpureum</i> Schumach.	Elephant grass		×	×	×											×					Tall erect perennial grass (~ 4.5 m tall). Altitude: 0-2 000 m; Mean annual temperature: 21.1 °C; Mean annual rainfall: 1 400 mm. Grows best in deep fertile soils and prefers deep friable loams. Found in damp grassland and forest edges.
<i>Cenchrus ciliaris</i> L.	buffelgrass	×		×	×											×				×	Tufted perennial grass (0.6-1 m tall). Altitude: 0-2 500 m; Annual temperature: 12-28 °C; Annual rainfall: 100-1 000 mm. Occurs in the wild on sandy soils, but is also well adapted to deep, freely draining sandy loam, loam, clay loam and red earth soils. Slow to establish on black cracking clay soils but grows well once established.
<i>Saccharum spontaneum</i> L.	Wild sugarcane	×		×											×						Stout erect perennial grass (~ 6 m tall). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown.
<i>Pennisetum orientale</i> Rich.	Oriental fountain grass	×		×												×					Perrenial clump forming grass (0.9-1.2 m tall). Altitude: 700-2000 m; Mean annual temperature: unknown; Mean annual rainfall: unknown.
<i>Pinus gerardiana</i> - Wall. ex D.Don.	Chilghoza Pine	×			×									×							Slow-growing evergreen tree (~ 25 m tall). Altitude: 1800-3350 m; Mean annual temperature: unknown; Mean annual rainfall: unknown.Prefers well-drained light (sandy), medium (loamy) and heavy (clay) soils. Can grow in nutritionally poor soils.
<i>Glycyrrhiza glabra</i> L.	Licorice	×													×						Perennial herb (0.5 -1.5 m tall). Altitude: 500-1 300 m; Mean annual temperature: unknown; Mean annual rainfall: unknown.
<i>Ferula assafoetida</i> L.	Devil's dung	×												×	×						Perennial herb (~ 2 m). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown. Prefers dry or moist well-drained light (sandy), medium (loamy) and heavy (clay) soils. Grows in acid, neutral and basic (alkaline) soils.

Scientific name	Common name	Indigenous	Exotic	Soil Stabilization	Drought tolerant	Soil Fertility	Wind break	Flood tolerant	Plantation/Woodlot	Riparian	Timber	Fuelwood	Charcoal	Edible Fruits/seeds	Medicines	Fodder	Hives (for Honey)	Inter-cropping	Salt tolerance	Fire tolerant	Description of bio-physical parameters
<i>Populus deltoides</i> <i>W.Bartram. ex Marshall.</i>	Eastern cottonwood		✗	✗			✗							✗	✗						Deciduous tree (30 m). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: 380-1 400 mm. Prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil.
<i>Cedrus deodara (Roxb.) G.Don</i>	Deodar cedar	✗									✗				✗						Evergreen tree (~ 33 m tall). Altitude: unknown; Mean annual temperature: unknown; Mean annual rainfall: unknown. Grows on rich loam or a sandy clay.

Appendix 12 Indicative costs of infrastructure requirements for trialling the EWS model in pilot districts of Balkh Province (Output 1.2).

Unit	Unit cost (US\$)¹²⁸	Number units	Cost (US\$)	Notes
Radio Transceiver (including maintenance)	3,000	5	15,000	1
Two-way radios (including maintenance)	100	20	2,000	2
Television (including maintenance)	1,000	8	8,000	3
Radios (including maintenance)	200	35	7,000	4
Solar cells (including maintenance)	1,000	8	8,000	5
Total			40,000	

Notes:

1	Receive and transmit high frequency weather warnings. Transceivers will be housed in Kabul, Mazār-i-Sharīf (capital city of Balkh Province) and at CDCs of each of the three pilot districts i.e. Balkh, Dihdadi and Nahri Shahi Districts.
2	Facilitate on-the-ground communication in Mazār-i-Sharīf and in pilot villages in Balkh, Dihdadi and Nahri Shahi Districts.
3	Allow for access to news and information on weather events in Mazār-i-Sharīf and in pilot villages in Balkh, Dihdadi and Nahri Shahi Districts.
4	Allow community members access to news and information on weather events.
5	Provide a source of power for the radio transceivers, two-way radios, television and radios in villages without access to electricity; and provide a back-up source of power for where electricity is available.

¹²⁸ Costs for the radio transceiver were obtained from the Department of Meteorology and Hydrology (Ministry of Transport, Myanmar), who are the Executing Agency for a proposed Myanmar LDCF project. All other costs are best-guess estimates of current prices obtained from a general web search.

Appendix 13 Dynamic systems modelling.

Dynamic systems modelling (e.g. Threshold 21, T21) allows the complex interactions (non-linear effects with feedback) between variables in a system to be established and understood. In this respect, it can be a valuable tool for addressing developmental issues characterised by the complex interactions between the three spheres of development – Economy, Society and Environment.

T21 has been used to investigate the impacts of climate change on various sectors (e.g. water resources and the effect of tropical cyclones on the tourism sector), which can be used to formulate climate change-resilient adaptation policies and allows the cross-sectoral and cross-disciplinary dimensions of climate change to be captured. Hence, it would be of value for Cambodian decision- and policy-makers to engage with the relevant ministries in nearby countries in which dynamic systems modelling has been utilised, in order to facilitate knowledge sharing.

To date, T21 has been applied in more than 20 countries (including Papua, Indonesia and Bhutan, which are relatively close to Cambodia). The following information related to the use of T21 in Papua and Bhutan is extracted from the following document: *A proposal for sectoral vulnerability to climate change assessments and capacity building for six African countries using Threshold 21 Modelling. July 2010. The Millennium Institute. www.millennium-institute.org.*

T21-Bhutan: *T21 was customized for Bhutan in 2002 to investigate the impacts of climate change on agriculture and food production. Specifically, the model addressed the impact on crop yield, hydropower generation, and land use for horticulture export under various policy scenarios. The analysis concluded that the negative impact of climate change would be food shortage, reduction in hydropower generation, and lower revenues to the government from this sector. Hydropower being a major source of public revenues, this loss would diminish the capacity of the government to provide public and social services, and to fund required adjustment to the climate change. The project was implemented under the Netherlands Climate Change Studies Assistance Program (now Netherlands Climate Assistance Program).*

T21-Papua: *Working in collaboration with Conservation International and the local Papua government, T21 was customized for Papua to analyze alternative development strategies and help decision-makers determine a strategy that contributes to economic development of Papua, but not degrade its environment – an issue of major concern to the government. T21 was used to test the impact of various policy scenarios on the national development, in particular, the GDP and GNP; employment; external debt; and biodiversity. It determined that although the exploitation of natural resources would generate additional provincial income, it would not improve the incomes of Papuans, as the profits would go elsewhere, while the pollution and other negative impacts would adversely affect the prospects for Papua. The model shows how focusing on improving local infrastructure and businesses would do much better for the province. The governor is still using the model to support his position.*

Appendix 14 Details regarding the demonstration sites.

A 1.1 Balkh Province

Balkh Province in the North of Afghanistan is a diverse agricultural region, characterised by mountainous terrain in the south and flat plains in the north. The climate is relatively warm with moderate winters, which is conducive to intensive production of livestock as well as horticultural and field crops. The soils are relatively fertile, and the Amu Darya River and the groundwater resources of the Province's northern plains have the potential to increase irrigated area considerably. Much of the existing irrigation infrastructure, such as tube wells and irrigation canals, has been damaged or destroyed during years of conflict. This has led to a decline in agricultural productivity and deterioration of land. The production of rainfed grain and oil seed crops is widely practised, and is particularly vulnerable to climate change impacts such as drought and increased temperature. Very little native vegetation cover remains, largely as a result of overgrazing, collection of timber and woodfuel, and clearance for agriculture. Consequently, the soils of many areas are prone to erosion, declining fertility and reduced water infiltration. This reduces the recharge of groundwater and causes a decline in productivity of pastures and crops.

To decrease the vulnerability of Balkh Province to the anticipated impacts of climate change, the project will implement an ecosystem management approach to climate change adaptation. Project activities will increase the resilience of selected beneficiary communities to future climate change impacts by: i) demonstrating adaptation activities at the community level; ii) promoting research; iii) building capacity; and iv) promoting the development of pertinent policies.

Site selection

Specific sites for project interventions in Balkh have not been identified at the time of writing of this Project Document. Travel within the province was not feasible for the IC or NCs due to security concerns in 2011, and therefore the selection of project activities was undertaken in consultation with an NGO (ICARDA) with considerable experience of operating in the area. It is likely that ICARDA will undertake the project implementation within Balkh due to their prior experience in the area and the existence of support structures within the province. However, the governor of Balkh was consulted, and has given his endorsement of the project.

Site selection will therefore be undertaken in conjunction with baseline assessments and VRAs during the project inception period.

Baseline projects

Due to security issues during the PPG stage, it was not possible for the IC or NCs to visit project sites in Balkh. Both the NABDP and the NSP are operating in the area, and a valuable partner organisation has been identified in the form of ICARDA. One relevant development is a joint project between ICARDA and MAIL to develop strains of drought-tolerant crop varieties that will be adapted to conditions in major agricultural regions, including Balkh.

Proposed interventions:

Project interventions will broadly increase the capacity of Balkh Province to adapt to climate change impacts. Demonstration activities will focus primarily on enhancing agricultural production and increasing the resilience of the sector to water shortages. Training and workshops will be provided to local participants to increase the capacity of the region's communities to plan for and adapt to climate change. As a result of the low rainfall in the Balkh province, the relevant intervention for the area is a focus on alternative methodologies

to enhance resilience of dryland agriculture under conditions of climate change. A small-scale, integrated programme combining:

- Implementation of improved water efficiency techniques for dry land agriculture: water harvesting (micro-catchment). Groundcover techniques such as strip crop-catchments for increasing soil water infiltration for the growth of forage shrubs, fruit tree and crops will be trialled. This will increase the rate of infiltration of rainwater into the soil despite the increasing likelihood of drought. Additional small-scale techniques such as the establishment of small contour bunds and catchment ponds to capture local rainfall will be undertaken as determined by the needs of local communities. These simple methods of increasing water availability under climate change-induced increases in drought conditions and low rainfall will enhance the resilience of dry land agriculture.
- Promotion of planting of drought-resilient crop species and cultivars. Drought-resilient species identified through consultation with MAIL, ICARDA and other experts will be promoted to complement low water-use strategies.
- Instruction for communities on appropriate cultivation techniques. Communities will be taught how to implement the new water efficiency techniques and how to effectively manage drought-resilient dryland agriculture and watershed restoration in the face of climate change.

A 1.2 Badakhshan Province

Within Badakhshan Province are two important watersheds which are part of the Amu Darya River Basin, namely the Panj and Kokcha watersheds. These watershed areas are primarily rangeland (~60%) with areas of permanent snow cover (26% and 12% in the Panj and Kokcha watersheds, respectively). The province is characterised by diverse agro-ecological zones, where production of livestock, wheat and perennial crops such as walnuts and mulberries are common livelihoods. The average number of cows and milking cows per family is 1.1 and 0.7 respectively, which is higher than the national average. Agricultural productivity is generally low because of the province's short growing season as well as limited access to fertilisers, improved seed varieties and irrigation. The irrigated area of cropland is relatively small, approximately 0.7% and 3% in the Panj and Kokcha watersheds respectively, in part due to the lack of modern irrigation technology and infrastructure. Crops are primarily irrigated by diverting rivers into canal systems. The productivity and sustainability of livelihoods in the region, in particular agriculture, is vulnerable to climate hazards such as flash floods and landslides. Because of the widespread reliance on wood as a source of domestic energy and a building material, the province is characterised by extensive deforestation, aggravating the vulnerability of local communities to floods and landslides. Upgrades to transport infrastructure are on-going, however the limited access to Afghanistan's interior is a challenge to the development of the region, for example by restricting access to agricultural export centres. This is aggravated by climate hazards such as landslides and floods, which can block roads entirely.

To decrease the vulnerability of Badakhshan Province to the anticipated impacts of climate change, the project will implement an ecosystem management approach to climate change adaptation in three pilot villages. Project activities will increase the resilience of communities in Badakhshan to future climate change impacts by: i) demonstrating adaptation activities at the community level; ii) promoting research; iii) building capacity; and iv) promoting the development of pertinent policies. The villages of Ashi, Gazan and Rabat were selected for pilot project implementation.

Conditions pertinent to project

The villages of Ashi, Gazan and Rabat are located on the lower slopes of the Pamir Mountains bordering Faizabad. Typical of many villages in North-east Afghanistan, local communities are highly dependent on subsistence agriculture. The soils of the region are of

poor quality and characterised by degradation and surface erosion. Consequently, crop yields are very low and are often insufficient to maintain food security through winter. Any potential surplus, if any, will come from raising livestock. However, because of widespread degradation, rangeland vegetation has poor nutritional value and large areas of land are required to raise any surplus animals. Horticultural crops such as fruit and nut trees are only grown on a small subsistence scale

The three villages of Ashi, Gazan and Rabat represent food-insecure communities in North-east Afghanistan. Approximately 44% of the households cannot meet their food requirements in a given season and are highly dependent on food aid and support from family members who have migrated to urban centres to seek work opportunities. These communities are highly vulnerable to the anticipated impacts of climate change, which have significant potential to disrupt agricultural activities and food security in the region.

Site selection

The first site selection mission for the LDCF project was done in Tagab e Keshim District, Badakhshan Province, September 2010 by UNEP international experts. Several villages were selected and project interventions conceptualized jointly with local leaders, the local Member of Parliament representative, Mr. Awrang and government officials. Since then, security conditions have changed considerably. A second mission was conducted by Ernie Wijangco (UNEP) in October 2011. Aside from the aforementioned vulnerability of the selected villages to climate shocks, an additional reason for selecting Ashi, Gazan and Rabat is their proximity to Faizabad and the relative security of the area. All are ~ 6 km from the town centre, which facilitates efficient implementation and management and allows the project to be showcased to interested agencies.

Baseline projects

There are two on-going general projects within the three selected villages:

- Emergency relief projects providing food aid during winter months.
- National Solidarity Programme (NSP) of the government of the Islamic Republic of Afghanistan.

The NSP projects are predominantly reconstruction projects focusing on infrastructure outputs:

- Ashi: water supply, check dam construction (75 m);
- Gazan: basic access, tertiary road construction (6 km); and
- Rabat: water supply network, spring water and irrigation canal improvement (160 ha).

Proposed interventions

The project interventions for all three villages were based on key interviews with local leaders, officials of the provincial MAIL and officers of the NSP. It was agreed by all that the LDCF projects build upon the NSP to facilitate project initiation. In addition, it was decided that a basic information drive is necessary to educate the target communities on: i) climate change concepts and realities; ii) strategic village-level challenges and management dilemmas; and ii) the new national policy and strategy of the government on environmental restoration using a community-based approach towards village empowerment.

All the interventions (outputs) from the baseline projects funded by the NSP are “stand alone” projects. Projects were conceptualized and implemented in haste to show visible, concrete results but are highly vulnerable to impacts from climate change-induced extreme weather, landslides and erosion.

Project activities will focus on increasing climate change adaptation capacity by implementing water infrastructure and irrigation technologies and catchment restoration to build the resilience of the dryland agricultural sector.

Activities under the proposed interventions will include:

- Establishment of 200 ha of multiple-benefit shrub and tree species in Ashi, Gazan and Rabat villages. Local nurseries will also be established for beneficiary communities. The plants will be selected on the basis of their multiple uses (see Appendix 11 for examples), and historical local availability. Multiple-benefit shrub and tree species will be used to restore at least 200 ha of extremely degraded slopes. This will provide significant adaptation benefits by reducing soil erosion, river siltation, and runoff of surface water, thereby improving water quality and reducing the likelihood of flooding. Infiltration of water into soil will increase, which will benefit agriculture downstream and regulate water flow during climate change-induced extreme weather fluctuations. Finally, the tree species selected will provide fruits and nuts for market sale, improving the livelihoods of the local communities. Other planted species will provide additional benefits to the local communities in the form of fodder, firewood and medicine. Training will be provided to the local communities in CBNRM and watershed management to ensure the sustainability of the restoration adaptation approach.
- Improved water management through the establishment of check dams, micro-irrigation and community water management plans. Communities will be trained on CBNRM and watershed management approaches to ensure the viability of the watershed approach. CDC and village structures will be mobilised to maintain and improve the local watershed beyond the 200 ha of restoration designated in Outcome 3.2. Activities will be identified by the local community in conjunction with local experts. Training will be provided to communities to specifically focus on promoting restoration adaptation measures to ensure the viability of improvements under conditions of climate change. In addition, check dams and micro-irrigation structures will be established in order to both promote and trial low water usage alternative methods for climate resilient agriculture, including:
 - Construction of check dams and development of local water management plans for improved water supply and reduced flooding in Ashi village. This intervention will build on the baseline NSP local activities directed at establishing irrigation canals. The intervention will provide additional check dams (of at least ~10,500 m³ increased capacity) and village-level impounding dams (at least 3) to improve the function of the NSP main check dam under changing water flow conditions from climate change. Water management training will be conducted to promote increased water usage efficiency within the community and local water plans will be developed in conjunction with the local community to promote an adaptive approach to water management, increasing the ability of the community to adapt to climate change.
 - Improvement of spring water system for drip irrigation in Rabat village. A check dam will be constructed below a local spring and drip irrigation infrastructure will be installed to supply irrigation to ~42 hectares of local farmland. The inefficient irrigation technique of flooding fields by diverting rivers is still widely practiced. The introduction of drip irrigation and low-water-use approaches will increase the adaptive capacity of the community towards a changing climate. The community will also be trained in: i) water supply and demand management; ii) identification of system losses; and iii) management of the new irrigation systems.

Project Outputs and Beneficiaries

Communities in the villages of Ashi, Gazan and Rabat will benefit from the project activity. The vulnerability of agriculture, infrastructure and communities to climate change impacts (such as flooding, landslides, high temperatures and water shortages) will be reduced. Increased quality and availability of water, reduced degradation of soils and increased availability of natural products from restored vegetation will improved local livelihoods and reduce food insecurity. At least 30 % of the project participants will be female. These women and girls will take part in the ecological restoration, monitoring and rehabilitation of vegetation. Other communities living downstream will benefit indirectly as a result of

improved environment and ecosystem services, better retention of water in the landscape and improved health and sanitation systems as a result of improved ecosystem functioning. Project activities will reduce damage to infrastructure from extreme weather events, which have the potential to limit socio-economic development in the region.

A 1.3 Bamyan Province

Bamyan Province is a relatively undeveloped province in terms of infrastructure and economic activity. Much of the region is mountainous and inaccessible. Soil quality is mostly poor and large areas of land are marginal or unsuitable for agriculture. Livestock production has traditionally been the livelihood of the province's population, however the productivity and size of this sector has declined considerably. This is largely attributable to drought, extensive deforestation and degradation of pasture lands. Main crops grown are field crops such as wheat, barley, beans and potatoes. Horticultural crops grown in some areas include apples, apricots, cherries, peaches, pears and walnuts. Due to the harsh climate, farmers are often limited to one crop season per year. This leaves communities, particularly those without access to irrigation who practice forms of subsistence agriculture, particularly vulnerable to climate shocks such as drought and heat waves. The population of Bamyan Province and their farming practices are also vulnerable to flash floods and landslides, which have become more common because of widespread soil degradation and removal of vegetation cover. To decrease the vulnerability of Bamyan Province to the anticipated impacts of climate change, the project will implement pilot ecosystem management interventions in the Ahangaran, Dukoni, Khushkak and Foladi valleys. Project activities will benefit approximately 3,150 households from at least 5 out of 14 villages.

Conditions pertinent to project

Beneficiary communities in the selected river valleys are highly vulnerable to the anticipated effects of climate change, which are likely to severely impact on livelihoods by limiting livestock and agricultural productivity and the essential services provided by local ecosystems. The vulnerability of local communities to climate-linked hazards such as flash flooding and landslides is increased by widespread environmental degradation, caused by factors such as clearance of vegetation to provide woodfuel and unsustainable management of grazing areas. There is currently a high level of poverty and food insecurity in the region due to the limited infrastructure and economic development, decline in ecosystem services due to widespread environmental degradation, and declining productivity in the agriculture sector.

Site selection

Site selection was undertaken using the standard site selection vulnerability rating sheet (see Appendix 8), in consultation with key district officials, local NGOs, and UNEP experts during June 2011. Highland watershed areas are generally more vulnerable to the effects of climate change as a result of the steep slopes and low vegetation cover, and protection of these areas is a priority for ensuring continued ecosystem benefits for downstream areas. In addition, whilst these areas have often benefitted less than other areas from development activities under the NSP and NABDP, they are invaluable in protecting this infrastructure from damage from extreme weather-induced floods, landslides and erosion. In general, the poorest communities in the Bamyan province live in these highland areas, and consequently they were selected as a priority during these consultations.

Baseline projects

- FAO and the EU are starting to work on a Social Water Management project in the lower Bamyan regions in 2012. This project will liaise directly through project office in Bamyan.
- Conservation Organisation for Afghanistan Mountain Areas (COAM) working together with the UNEP and the Ministry of Agriculture, Irrigation and Livestock, Bamyan

University and a consortium of local development and conservation organizations working for sustainable land management in Afghanistan.

- The Bamyan project area is part of UNEP's proposed Shah Foladi Conservation Area, a protected area, part of the Koh-e Baba mountain ranges of Central Highlands in Afghanistan. The Koh-e Baba watershed is the single most important central watershed in Afghanistan.
- The Koh-e Baba Mountain range will be a site for GEF Climate Change and Biodiversity projects as part of GEF 2012-2015 phase projects. Koh-e Baba is also a proposed Man and the Biosphere conservation area as part of the UNESCO programme.

Proposed interventions

Interventions were identified through consultation with NEPA officials, local NGOs and UNEP experts operating in the area. The vulnerability of beneficiary communities to climate change impacts will be reduced by implementing a comprehensive community-based adaptation programme through integrated watershed the project sites. This includes the following activities: i) drawing up community conservation site plans for the mountain area with CDC representatives from all communities in Bamyan Province; ii) developing an implementation strategy which will lead to sustainable community-managed green space in these villages, providing ecosystem services and flora and fauna conservation in a high ecological value area of catchments flowing north from the Koh-e Baba watershed; and iii) organising training sessions for communities and other provincial partners for conservation education and management of small-scale conservation areas in the mountains of Bamyan. Ecosystem management interventions will focus on 5 out of 15 villages in the Ahangaran, Dukoni, Khushkak and Foladi valleys.

It is anticipated that all the activities within Bamyan will be undertaken by a single executing partner, most likely an NGO such as COAM or other body with sufficient local capacity to complement the baseline operations by MRRD.

Activities to be undertaken as a part of the CBNRM intervention include:

- Development of integrated watershed managements plans. These will include community-based adaptation measures for at least 5 upper catchment areas across the Bamyan Province. These plans will include:
 - Community conservation and restoration plans for the mountain catchment area. These plans will be formulated by CDC representatives from communities from the project sites.
 - An implementation strategy for sustainable community-managed green spaces in upper valley areas. These community-managed spaces will provide ecosystem services to provide livelihood benefits to the local communities. The green spaces will also assist with the conservation of flora and fauna in a catchment area of high ecological value.
 - Organisation of training sessions for communities and other provincial partners to provide conservation education and the management of small-scale conservation areas in the mountain areas in the Bamyan province. This training will specifically focus on promoting restoration adaptation measures to ensure the viability of improvements under conditions of climate change.

Project Outputs and Beneficiaries

Villages in the upper mountain areas of Ahangaran, Dukoni, Khushkak and Foladi valleys of Bamyan Province will benefit from the formulation of plans for integrated watershed management. The plans will be supported by expert advisors, and will thus provide a solid structure and guidance for consequent implementation of suggested interventions in future adaptation projects in the area.

A 1.4 Daykundi (Dai Kundi) Province

Daykundi Province is one of Afghanistan's poorest, most undeveloped and inaccessible regions. Most parts of the province remain cut off from the rest of the country for more than six months of the year during winter and spring time. The province also experiences acute water shortages, extensive food insecurity, poor soil quality, extreme winter temperatures and high snowfalls in most of the districts. It is considered one of the poorest provinces in the country. The province is characterised by mountainous terrain and harsh extremes in climate, ranging from high temperatures and drought in the summer to high snowfall and prolonged freezing temperatures in the winter. Livestock and agricultural production is low but is the primary livelihood of the province's population. Wheat, almonds, apples and apricots are the main crops, however productivity has been in decline. Lack of perennial access to irrigation water, poor soil quality, and lack of access to markets has limited the expansion of the agriculture sector. Climate hazards, notably droughts, avalanches, landslides and widespread flooding cause extensive damage to agricultural land and infrastructure and have the potential to create food insecurity and cause loss of life. Poverty and food insecurity is very high, as clearly stated in the Oxfam GB's food assessment in early 2009 (worst rating in terms of food insecurity and 30-45 % 'high' poverty levels). Years of recent drought, three consecutive years of flash flooding and harsh winter have severely affected the harvest.

To improve the resilience of Daykundi Province to the anticipated impacts of climate change, the project will implement pilot ecosystem management interventions within the area of Nili municipality. Project activities will focus on increasing climate change adaptation capacity by introducing pilot intervention measures focused on the villages of Seyon, Lazir and Pesok as well as introducing interventions to the municipality's wider peri-urban areas. Project activities will increase the resilience of communities to climate change impacts by: i) demonstrating adaptation activities at the community level; ii) promoting research; iii) building capacity; and iv) promoting the development of pertinent policies.

Conditions pertinent to project

The peri-urban area of Nili Municipality and three neighbouring villages, namely Seyon, Lazir and Pesok, were selected for implementation of project activities. Nili as a district will experience challenging and diverse climate change effects including increasing summer and winter temperatures, changing patterns of precipitation and water shortages. Extreme events such as flooding are likely to become more frequent. Other likely impacts include water scarcity, increased air pollution and increased pressure on infrastructure and peri-urban areas. These effects are likely to have fundamental implications for agriculture, local food security and public health, and will limit socio-economic development.

The newly developed municipal government in Nili is limited by funds, infrastructure and municipal machinery, but has been relatively effective in using what little resources are available. Local government is supported by external sources such as the UNDP sub-national governance programme, the USAID led RAMP-Up programme and Ministry of Urban development support. The capacity for local governance was strengthened by the formation of a Mixed District Development Assembly (DDA) representing the clusters of CDCs in 2007. The DDA enhances cooperation between the communities and government and ensures community participation in district development planning and management processes. With technical support from the NABDP and United Nations Development Programme (UNDP), the DDA and district government representatives formulated a District Development Plan (DDP) for Nili District. The improved capacity for governance in the district provides an opportunity to effectively implement a sustainable Ecosystems Management programme.

Site selection

The NCs met with district officials from MAIL, MEW, MRRD, ANDMA and NEPA in a joint meeting in June 2011. In addition, the NCs visited watershed areas identified by these officials. Sites were selected using the standard prioritisation sheet (see Appendix 8). Certain areas where people were highly vulnerable to climate change impacts had to be excluded from the selection because they were inaccessible by road. It was consequently decided to use peri-urban areas surrounding Nili town, and several villages in the watersheds feeding into the Nili valley. Most rural and peri-urban communities in Daykundi are highly vulnerable to climate change impacts as a result of both poverty and dependence on rain-fed agriculture, largely as a result of the minimal development that has occurred in the area. Consequently, the areas selected are all highly vulnerable according to the selection criteria.

Baseline projects

Other ongoing projects in Daykundi Province include:

- National Area Based Development Project (NABDP)

This national project's aim is to ensure the social and economic wellbeing of rural communities, especially the poor and vulnerable in and around Daykundi. The Ministry of Rural Development (MRRD) is the implementing agency with World Bank and ADB providing financial support. In Daykundi the focus is on the irrigation sector (kariz construction and rehabilitation, protection walls and channels).

- Energy for Rural Development in Afghanistan (ERDA)/NABDP

A technical team is developing micro-hydro feasibility studies in Nili and Sharistan districts. The target will be for 100 KW of micro-hydro projects to be implemented during 2012/13 with the estimated budget of US\$ 600,000. The LDCF proposed project will focus on improved environmental planning and management of the locations in advance of the ERDA/NABDP projects, and on ecological support and restoration to increase the capacity for sustainability.

- ONE UN Programme for Daykundi Province

The United Nations is working in Nili on the One UN Programme (which started in 2009) with a broad number of interventions from over 10 UN agencies in areas of health, education, infrastructure, governance and human rights.

Proposed interventions

The project will seek to alleviate climate change impacts on peri-urban areas of Nili Municipality and the villages of Seyon, Lazir and Pesok. Anticipated climate impacts include inter alia increasing summer and winter temperatures, changing patterns of precipitation and water shortages. The project will introduce climate change adaptation by implementing watershed management and green infrastructure planning in rural and peri-urban areas. A number of coordinated activities will reduce risks to the watershed area around Nili through integrated watershed management, including the restoration of aquatic zones.

Specific activities to be undertaken through this intervention include:

- Revegetation and restoration of degraded wetlands, floodplains and flood-prone areas. Suitable indigenous and locally adapted plant species will be planted across at least 120 ha of degraded land. This will help to regulate water flow and protect the municipal infrastructure in peri-urban areas under changing climatic conditions. All species used will provide multiple benefits in the form of soil stabilisation, increased water filtration into the soil (as a result of reduced surface flow and deeper roots) and livelihood enhancement from ecosystems products (e.g. wood, fodder for animals, medicinal plants). These benefits will both reduce the impacts of climate change-induced extreme weather and enhance local livelihoods under conditions of climate change.
- Construction of suitable water catchment contour structures and flood barriers. Structures including stone bunds and gabions will be implemented over at least 140 ha

of flood- and erosion-prone wetland areas. Floodwater retention berms stabilised by deep-rooting local tree species will be established along rivers, reducing potential flood damage to the downstream infrastructural improvements undertaken by baseline projects. These structures will promote steady stream flow and regulate flood waters despite climate change-induced extreme weather, thereby enhancing both local and downstream adaptive capacity.

Project Beneficiaries and Outputs

Communities in the peri-urban area of Nili municipality and in the surrounding villages of Sevon, Lazir and Pesok will benefit from an integrated approach to restoring ecosystems, supporting livelihoods and enhancing resilience to climate change impacts. The introduction of land management and restoration initiatives will enhance the function of watersheds, thereby maintaining soil stability, improving infiltration of rain water, restoring health and perennial flow of river systems. This will reduce the incidence of climate shock events such as floods and landslides, and the increased quality and availability of water will improve urban services and support agricultural intensification. The provision of multi-use plant species will support livelihoods of the beneficiary communities and provide useful products such as food, medicine, fodder, timber and fuel. The broad benefits of restored multi-use ecosystems will create an incentive for beneficiary communities to maintain restored landscapes.

Appendix 15 Indicative costs of micro-scale water efficiency measures in Output 3.1.

Dams				
	Cost per unit (US\$)	Year 1	Year 2	Year 3
Check dam (~3,500 m ³)	2,950 ¹²⁹ ¹³⁰			
Small sand/gravel storage dam	8,250 ¹³¹			
Total ¹³²	42,000	42,000	-	-
AMIT				
	Unit variable			
Cost per unit (US\$)	130 ¹³³			
Area covered by unit (ha)	0.1			
Cost per hectare (US\$)	1,300			
Number of households with access to micro-irrigation	424			
Potential irrigable area (ha)	42			
	Total	Year 1	Year 2	Year 3
Subtotal	55,000	-	55,000	
Training in water efficiency measures				
	Total (US\$)	Year 1	Year 2	Year 3
Water management and efficient use		10,000	10,000	10,000
Total for Component 3.1	Total (US\$)	Year 1	Year 2	Year 3
	127,000	52,000	65,000	10,000

¹²⁹ TARAhaat, "Check Dams" (TARAhaat. Development Alternatives, 2007), http://www.tarahaat.com/water_CheckDam.aspx.

¹³⁰ A Bustamante, "A Water Impounding Dam Along Punta-taytay Creek 200 East of Punta-taytay Bridge in Barangay Taloc, Bago, Neg. Occ. The Rotary Club of Bacolod East 5-Year Irrigation Program" (The Rotary Club of Bacolod East, n.d.), <http://www.lasaltech.com/~rcbacest/irrigation/irrigation.htm>.

¹³¹ UNEP, "Sub-surface Dams, Small Dams, and Sand Dams. Sourcebook of Alternative Technologies for Freshwater Augmentation in Africa" (Division of Technology, Industry and Economics. United Nations Environment Program, <http://www.unep.or.jp/ietc/publications/techpublications/techpub-8a/dams.asp>).

¹³² Assuming each of three villages acquires one storage dam and one check dam, plus 25% costs for budgetary uncertainties.

¹³³ * Based on the unit price for Quarter Acre Drip Kit. IDE, "Technical Manual for Affordable Micro-Irrigation Technology (AMIT)" (International Development Enterprises, Lakewood, California, n.d.).

Appendix 16 Indicative costs of introduction of improved drought-tolerant crop varieties for Output 3.2.

	Unit	Year 1	Year 2	Year 3
Genetically improved commercial crop seed (drought tolerant) (US\$/hectare) ¹³⁴¹³⁵	238			
Number of hectares per household	1	1	1	1
Number of households	400	400	400	400
Number of hectares	400	400	400	400
Growing seasons	3			
Total cost (US\$)	285600	95200	95200	95200
Training in climate resilient agriculture	Total (US\$)	Year 1	Year 2	Year 3
Training programs	106400	46400	30000	30000

Costs of providing high-quality drought-tolerant crop varieties is estimated as US\$ 238/ha, based on the estimated costs of dryland wheat and chickpea establishment in South Africa and Iran, respectively¹³⁶¹³⁷. Sufficient seed for at least one hectare should be supplied to at least 400 farmer households for three successive growing seasons. The training provided to farmers and extension staff from ICARDA and MAIL should include a course on record-keeping and monitoring of crop performance in order to ensure that pilot activities identify suitable drought-tolerant crop varieties for Afghanistan. The estimated cost of introducing drought-tolerant crop varieties to 400 ha of farmland is US\$ 285,600.

¹³⁴ Thomas, "Crop Production in the Limpopo Province."

¹³⁵ Salami and Ahmadi, "Energy Inputs and Outputs in a Chickpea Production System in Kurdistan, Iran."

¹³⁶ R Thomas, "Crop Production in the Limpopo Province" (Limpopo Department of Agriculture, Republic of South Africa, n.d.).

¹³⁷ P Salami and H Ahmadi, "Energy Inputs and Outputs in a Chickpea Production System in Kurdistan, Iran," *African Crop Science Journal* 18, no. 2 (2010): 51 – 57.

Appendix 17 Indicative costs of reforestation/forest restoration for Outputs 3.2 and 3.3.

		Year 1	Year 2	Year 3
Cost per hectare (US\$)	840 ^{138,139,140,141,142}	427	267	146
Number of hectares	200	200	200	200
Total budgeted cost (US\$)	168000	85400	53400	29200
Management activities				
	Proposed allocation of costs per hectare ^{143,144,145}	Cost per hectare (US\$)		
Site preparation, establishment, replacement planting	0.55	235	147	80
Agrochemicals (fertiliser, pesticide)	0.12	51	32	18
Pruning, thinning, weeding	0.065	28	17	9
Seasonal labour	0.065	28	17	9
Forest protection	0.2	85	53	29

Costs of restoring 200 ha of degraded watershed forest with multiple-use plant species are estimated as US\$ 840 / ha over a 3-year period. The latter figure is an estimated based on a review of available literature^{146,147,148,149,150}. Establishment and maintenance costs will include site preparation and establishment, application of agrochemicals, pruning/weeding, seasonal labour requirements, and plant protection measures (such as stakes and browsing guards).

Cost of initial establishment of restored forests in Year 1 is estimated as US\$ 427 / ha which includes cost of tree seedlings, land preparation equipment (for clearance of undergrowth, digging holes, pruning etc.), application of agrochemicals where necessary, and an allowance for labour. Maintenance of reforested areas in Year 2 is estimated to cost US\$

¹³⁸ Agroforestry costs ~US\$ 960 per ha in Bangladesh. Rahman, S. A., Paras, F. D., Khan, S. R., Imtiaj, A., Farhana, K. M., Toy, M. M., Akhand, M. B., Sunderland, T. 2011. Initiatives of tropical agroforestry to sustainable agriculture: A case study of Capasia Village, Northern Bangladesh. *Journal of Horticulture and Forestry* 3(4): 115-121.

¹³⁹ Agroforestry in Cambodia costs ~US\$ 300 - US\$ 500 per ha in a 2011 project. Information obtained from the Wildlife Alliance in Cambodia.

¹⁴⁰ Woodland restoration costs ~US\$ 1,750 per ha in Australia. Source: <http://fotpin.hussat.com.au/docs/woodland-restoration-implementation-plan%20.pdf>. [Accessed 4 September 2011].

¹⁴¹ Bottomland Forest restoration costs ~US\$ 178 - US\$ 267 per ha in a USA based project. National Research Council. 1991. *Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy*. National Academy Press, Washington, DC.

¹⁴² Spekboom Thicket restoration costs ~US\$860 per ha in South Africa.

¹⁴³ S.A. Rahman et al., "Initiatives of Tropical Agroforestry to Sustainable Agriculture: A Case Study of Capasia Village, Northern Bangladesh," *Journal of Horticulture and Forestry* 3, no. 4 (2011): 115 – 121..

¹⁴⁴ S Zhou et al., "The Costs and Benefits of Reforestation in Liping County, Guizhou Province, China," *Journal of Environmental Management* 85, no. 3 (2007): 722–735..

¹⁴⁵ E. S. Gardiner and J.M. Oliver, "Restoration of Bottomland Hardwood Forests in the Lower Mississippi Alluvial Valley, U.S.A." (CRC Press LLC, 2005), <http://www.unep-wcmc.org/medialibrary/2011/05/24/07113dac/US%20Mississippi%20highres.pdf>..

¹⁴⁶ Agroforestry costs ~US\$ 960 per ha in Bangladesh. Rahman, S. A., Paras, F. D., Khan, S. R., Imtiaj, A., Farhana, K. M., Toy, M. M., Akhand, M. B., Sunderland, T. 2011. Initiatives of tropical agroforestry to sustainable agriculture: A case study of Capasia Village, Northern Bangladesh. *Journal of Horticulture and Forestry* 3(4): 115-121.

¹⁴⁷ Agroforestry in Cambodia costs ~US\$ 300 - US\$ 500 per ha in a 2011 project. Information obtained from the Wildlife Alliance in Cambodia.

¹⁴⁸ Woodland restoration costs ~US\$ 1,750 per ha in Australia. Source: <http://fotpin.hussat.com.au/docs/woodland-restoration-implementation-plan%20.pdf>. [Accessed 4 September 2011].

¹⁴⁹ Bottomland Forest restoration costs ~US\$ 178 - US\$ 267 per ha in a USA based project. National Research Council. 1991. *Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy*. National Academy Press, Washington, DC.

¹⁵⁰ Spekboom Thicket restoration costs ~US\$860 per ha in South Africa.

267 / ha, which includes additional tree seedlings for enrichment planting, equipment and labour for pruning, thinning and control of undergrowth. Maintenance of reforested areas in Year 3 is estimated to cost US\$ 146 / ha, which includes equipment and labour for pruning, thinning and control of undergrowth as well as harvesting. The estimated cost of forest restoration and maintenance for 200 ha is estimated as US\$ 168,000.

Appendix 18 Indicative costs of restoration of wetland/riparian areas to enhance water catchment and reduce incidence of flood for Output 3.3.

	Unit
Cost of revegetation of meadows, wetlands, floodplains and urban areas (US\$/ha)	840 ^{151,152,153,154,}
Hectares	120
Cost of water catchment contour structures and flood barriers (US\$/ha)	260 ¹⁵⁵
Hectares	140
Village total (US\$)	137200
Total (US\$)	411,600 ~411,450

¹⁵¹ Agroforestry costs ~**US\$ 960** per ha in Bangladesh. Rahman, S. A., Paras, F. D., Khan, S. R., Imtiaj, A., Farhana, K. M., Toy, M. M., Akhand, M. B., Sunderland, T. 2011. Initiatives of tropical agroforestry to sustainable agriculture: A case study of Capasia Village, Northern Bangladesh. *Journal of Horticulture and Forestry* 3(4): 115-121.

¹⁵² Agroforestry in Cambodia costs ~**US\$ 300 - US\$ 500** per ha in a 2011 project. Information obtained from the Wildlife Alliance in Cambodia.

¹⁵³ Woodland restoration costs ~**US\$ 1,750** per ha in Australia. Source: <http://fotpin.hussat.com.au/docs/woodland-restoration-implementation-plan%20.pdf>. [Accessed 4 September 2011].

¹⁵⁴ Bottomland Forest restoration costs ~**US\$ 178 - US\$ 267** per ha in a USA based project. National Research Council. 1991. *Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy*. National Academy Press, Washington. DC.

¹⁵⁵ Ruffino, "Rain Water Harvesting & Artificial Recharge to Groundwater."

Appendix 19 UNEP/GEF Checklist for Environmental and Social Safeguards.

As part of the GEF's evolving Fiduciary Standards, implementing agencies have to include and address 'Environmental and Social Safeguards'.

To address this requirement UNEP/GEF has developed this checklist with the following guidance:

1. **Executing Agency** is responsible for completing the checklist with support from **UNEP/GEF Task Manager**.
2. Checklist shall initially be filled in during concept development to help guide in the identification of possible risks and activities that will need to be assessed and included in the project design.
3. The checklist shall accompany the PIF with the relevant column completed.
4. Checklist shall be updated during PPG phase and mitigation measures, including responsibility for addressing issues shall be indicated in relevant column
5. Final checklist shall be submitted with Project Package to PRC clearly showing what activities have been assessed and how negative impact will be avoided or mitigated, incl. responsibility for mitigation measures.
6. Checklist and planned mitigation measures shall be reviewed annually at PIR stage, to ensure that planned mitigation measures are taking place and that any previously unanticipated issues are identified and addressed.
7. Checklists and implementation will be reviewed by UNEP/GEF annually during PIR review, at Mid-term and at Terminal Evaluation stage.

Project Title:	<i>Building Adaptive Capacity and Resilience to Climate Change in Afghanistan</i>		
GEF project ID and UNEP ID/IMIS Number	GEF ID: 4227 ADDIS ID: 548	Version of checklist	2nd version was developed at PPG stage.
Project status (preparation, implementation, PIF)	<i>Under preparation</i>	Date of this version:	<i>May 2012</i>
Checklist prepared by (Name, Title, and Institution)	Chiranjibi Gautam, EIA and Pollution Control Expert, United Nations Environment Programme (UNEP) Post-Conflict & Disaster Management Branch		

Section A: Project location:

	Yes/No/N.A. ¹⁵⁶	Description of the issue: Distance, direction, connection to project area and size of applicable category and other relevant criteria.	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Is the project area in or close to -				
- densely populated area	Yes	In Daykundi Province, project activities will be undertaken in the peri-urban area around Nili, including several adjacent villages. The specific focus of the activities is to improve the resilience and adaptive capacity of the peri-urban area under conditions of climate change.	Project planning has been done in conjunction with district and local officials in order to pinpoint relevant activities to minimize the negative environmental impacts of climate change in the area, and enhance current infrastructure resilience. Local communities have been consulted and will be involved in project implementation to ensure project ownership.	No mitigation measures are required, as no negative environmental or social impacts are anticipated as a result of project implementation in proximity to Nili town. Monitoring and evaluation will be undertaken during the standard M&E periods.
- cultural heritage site	No			
- protected area	Yes	CBNRM activities in Bamyan Province will be undertaken in areas adjacent to the proposed Shah Foladi Conservation Area.	A scoping was undertaken with local communities and experts to assess the potential impacts of the project activities on the proposed protected area. At present, community impacts on the conservation areas are moderate: project activities will reduce these impacts by providing alternative incomes, ensuring both community resilience and enhanced conservation within the Shah Foladi Conservation Area.	No mitigation measures are required. Project activities in the area will promote conservation amongst local communities and reduce impacts on natural resources.
- wetland	No			
- mangrove	No			

¹⁵⁶ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope.

	Yes/No/N.A. ¹⁵⁶	Description of the issue: Distance, direction, connection to project area and size of applicable category and other relevant criteria.	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- estuarine	No			
- buffer zone of protected area	Yes	CBNRM activities in Bamyan Province will be undertaken in areas adjacent to the proposed Shah Foladi Conservation Area. This area is not a buffer zone.		No mitigation measures are required. Project activities in the area will promote conservation amongst local communities and reduce impacts on natural resources.
- special area for protection of biodiversity	No			

Section B: Environmental impacts, i.e.

	Yes/No/N.A. ¹⁵⁷	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Will project require temporary or permanent support facilities?	No	NEPA will provide provincial office space for the housing of field implementation staff, and additional implementation partners will be selected on the basis of their degree of establishment within the selected sites. No additional support facilities will be required.		No mitigation measures are required.
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction	No	No substantial infrastructural construction will be undertaken by the project, and small scale infrastructure (such as bandaks and catchment ponds)		No mitigation measures are required.

¹⁵⁷ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

	Yes/No/N.A. 157	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
of infrastructure?		will not impact on precious ecology, but rather enhance ecological functioning of the degraded ecosystems and economic functioning of agricultural areas as a result of the adaptation benefits they provide. Consequently, none of the currently identified activities and areas trigger strategic environmental assessments (SEAs) or environmental impact assessments (EIAs).		
- Are ecosystems related to project fragile or degraded?	Yes	The majority of ecosystems in Afghanistan are relatively fragile due to their arid nature, and the priority sites selected for project implementation are generally degraded as a result of human impacts.	No scoping has been undertaken. However, project activities are designed to establish resilient ecosystems in degraded areas in order to ensure long-term adaptation to the impacts of climate change. All on-the-ground implementation will be undertaken using expert guidance from qualified technical staff and scientific advisors.	No mitigation measures are anticipated as being necessary. Monitoring of the impacts of the project activities will be undertaken in order to assess the project implementation, and therefore no additional monitoring budget need to be assigned.
- Will project cause impairment of ecological opportunities?	No	The project aims to increase the ecological opportunities and ecosystem services despite the negative impacts of climate change. Short-, medium- and long-term impacts will be beneficial for local ecosystems.		No mitigation measures are required.
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	Project activities such as CBNRM and ecological restoration will reduce the likelihood of flooding and regulate the flow of rivers. No temporary waste water will be generated by project activities.		No mitigation measures are required.
- Will project cause air, soil or	No	No pollution will be generated by the		No mitigation measures are

	Yes/No/N.A. 157	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
water pollution?		project activities.		required.
- Will project cause soil erosion and siltation?	No	Project activities will increase soil water filtration in protected watersheds in all priority project areas, thereby reducing erosion and siltation.		No mitigation measures are required.
- Will project cause increased waste production?	No	No increased waste production will result from the project activities.		No mitigation measures are required.
- Will project cause hazardous waste production?	No	No hazardous waste will be generated by the project.		No mitigation measures are required.
- Will project cause threat to local ecosystems due to invasive species?	No	No invasive species will be used in the project.		No mitigation measures are required.
- Will project cause Greenhouse Gas Emissions?	No	Project activities are likely to reduce the emissions of greenhouse gases in identified priority sites through the restoration and re-establishment of degraded ecosystems, increasing soil and plant carbon sequestration.		No mitigation measures are required.
- Does the project encourage the use of environmentally friendly technologies?	Yes	Low water-use dryland agricultural techniques, CBNRM, IWM and the various ecosystem management-based adaptation interventions that will be promoted within local communities and at a national level are all environmentally-friendly, low-technology solutions.		No mitigation measures are required.
- Other environmental issues, e.g. noise and traffic	No			

Section C: Social impacts

	Yes/No/N.A. ¹⁵⁸	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	Yes	All project interventions have been developed in accordance with internationally proclaimed human rights, in conformity with UN guidelines. In addition, all activities were developed together with various stakeholders to ensure that no rights or laws are infringed by the proposed activities.		No mitigation measures are required.
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	No	Afghanistan's land tenure laws have not been fully formalised, and there is a long history of successive removal of people from the land as a result of political disturbance. However, common law protects the right of tenants to use the resources of the land that they occupy, and in areas where central government influence is limited, the local political figures and communities administer the land. Furthermore, the promotion of CDCs through the NSP means that communities are developing plans to organise and maintain shared resources. It is not anticipated that land tenure issues will have a significant impact on the project.		No mitigation measures are required.
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No	No, the project will promote a community-based natural resources management approach, in line with CDCs' community development plans.		No mitigation measures are required.

¹⁵⁸ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

	Yes/No/N.A. 158	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	All on the ground activities are implemented by local communities, and are preceded by and include stakeholder consultations together with training and information workshops. Technical briefs will be prepared to ensure that all stakeholders are fully informed.		No mitigation measures are required.
- Will the project affect the state of the targeted country's (-ies') institutional context?	Yes	The project will strengthen institutions within Afghanistan in order to facilitate mainstreaming of climate change adaptation. Local institutions such as CDCs, WUAs and <i>shuras</i> will be provided with training, as will district, provincial and national structures relevant to the project outcomes.		No mitigation measures are required.
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	Yes	The project is designed to enhance beneficial land uses and access to resources, including improved river flow and reduced siltation from identified project sites.		No negative effects anticipated, and therefore no mitigation measures required. Monitoring will be undertaken as part of the regular M&E process in order to evaluate beneficial outcomes of the project activities.
- Will the project cause technology or land use modification that may change present social and economic activities?	Yes	Project activities will enhance yields of small scale agriculture through the application of novel methods for dryland agriculture. All anticipated modifications of current land use and technology will enhance to social and economic benefits to local populations.	All project activities were developed through stakeholder consensus and expert analysis. In certain areas (Balkh Province) where full stakeholder consultation has not yet been undertaken, community consultation will be undertaken during project initiation. All final proposed project activities will be assessed and modified by expert	No mitigation measures are required. Annual monitoring and evaluation of project effects will highlight any potential problem areas, and any necessary mitigation activities will be recommended by the NPC, TM and SA.

	Yes/No/N.A. 158	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
			analysis, community input and scientific analysis throughout the project implementation (“learning-by-doing” approach).	
- Will the project cause dislocation or involuntary resettlement of people?	No	No movement of populations is required for project activities: local populations are involved in all on-the-ground implementation.		No mitigation measures are required.
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and/or possible overloading of social infrastructure?	No	No new roads are to be built through project activities, and no population movement is anticipated. Local social infrastructure will be enhanced through the project community engagement and consultation process, and through community training in adaptation techniques.		No mitigation measures are required.
- Will the project cause increased local or regional unemployment?	No	No long-term change in employment as a result of project activities is anticipated. Community members will be employed for short periods to achieve specific project objectives where necessary. Livelihoods of communities in project sites will be enhanced in order to improve community resilience under conditions of climate change.		No mitigation measures are required.
- Does the project include measures to avoid forced labour and/or child labour?	Yes	The project conforms to all national and international guidelines and laws regarding forced labour. Extensive community engagement will prevent the use of forced labour, and all required labour (short term employment only for establishing specific objectives) will be		No mitigation measures are required.

	Yes/No/N.A. 158	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
		provided through community engagement and remunerated in accordance with national law.		
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	Yes	The project will conform to all national and international guidelines and laws regarding health and safety for workers employed as part of the project. Community training will ensure that health and safety regulations are understood.		No mitigation measures are required.
- Will the project cause impairment of recreational opportunities?	No	Areas used specifically for recreational activities will not be included in the project.		No mitigation measures are required.
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	All project implementation will be carried out after stakeholder consultation and in accordance with local belief systems. Livelihoods of people in project sites will be improved through the project activities.		No mitigation measures are required.
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	Women's rights will be promoted in accordance with national legislation, appropriate strategies (NAPWA) and UN guidelines for interaction within Afghanistan.		No mitigation measures are required. Gender disaggregated indicators will be included as part of the regular M&E process in order to evaluate beneficial outcomes of the project activities to women.
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	No cultural heritage will be impacted through project operations.		No mitigation measures are required.
- Does the project include measures to avoid	Yes	Corruption is a persistent problem in some sectors of Afghanistan, and many	Capacity assessment of the national EA (NEPA) was undertaken during	Stringent accounting structures will be put in place and broad-based

	Yes/No/N.A. ¹⁵⁸	Description of the issue:	At PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
corruption?		government agencies are affected. Corruption within the selected EA is limited due to strong internal governance and stringent protection measures, but there is nevertheless potential for corruption within the project as a result of political interference at local levels, or within partner organisations.	the PPG phase. Potential capacity shortcomings were identified, and plans to mitigate these shortcomings and build capacity have been included in the proposed project administrative and management structures.	stakeholder consultation will reduce opportunities for corruption. All project disbursements will be monitored by UNEP administrative structures, and regular reporting by the project management team will ensure financial and administrative transparency is maintained throughout the project lifetime. Auditing will be carried out by UNEP internal mechanisms, and quarterly financial reports will be made available through the IMIS system to NEPA and the PSC.

Section D: Other considerations

	Yes/No/N.A. ¹⁵⁹	Description of the issue:	At PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measure, incl. timing, budget and responsibility.
- Does national regulation in affected country (-ies) require Environmental Impact Assessment and/or Social Impact Assessment for this type of activity?	Yes	Environment Law and EIA Regulation does not require an EIA/SIA for the size of the project intervention. However, the law stipulates that any development activities in areas that have been identified as environmentally sensitive	No identified environmentally sensitive areas have been nominated for project activities.	No mitigation activities are required.

¹⁵⁹ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

	Yes/No/N.A. <small>159</small>	Description of the issue:	AT PIF stage: Outline of studies/assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measure, incl. timing, budget and responsibility.
		require EIAs.		
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)?	Yes	The project EA (NEPA) is legally mandated with the monitoring and implementation of EIA regulations, and is in the process of building national capacity. However, an EIA/SIA is not required for the project (as described above).		No mitigation measures are required.
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	No	No other projects have been identified that are currently carrying out adaptation activities within Afghanistan. Project activities are complementary to the identified baseline projects, and will ensure that long-term adaptation benefits enhance the value of the baseline activities.		No mitigation measures are required.
- Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	Yes	Project will generate long-term environmental benefits by facilitating adaptation restoration in degraded ecosystems, and promoting improved water flow for agriculture and positive social impacts through enhanced productivity.		No mitigation measures are required.
- Is it possible to isolate the impact from this project to monitor E&S impact?	Yes	Some indicators have been developed to monitor the E&S impacts of the project, and additional indicators may be developed during project implementation to ensure relevant aspects of the project are monitored.		No mitigation measures are required.

Appendix 20 UNEP's comparative advantage.

UNEP has a proven international record for its strong technical and scientific background, and as such is an appropriate agency for providing implementation support for enhancing adaptive capacity within Afghanistan. UNEP has undertaken many projects where innovative solutions and methodologies are demonstrated at the local level. All such projects comply with the mandate from the UNEP Governing Council, as detailed in the Bali Strategic Plan for Technology Support and Capacity-building. In addition, UNEP's experience in community-based projects, natural resource management and support for the development of national environmental policy is well recognised by NEPA, MAIL and the NCCC.

UNEP's considerable experience in implementing LDCF projects throughout Africa as well as Asia and the Pacific region provide experience upon which the agency will draw during the implementation of this project. UNEP has established its reputation with respect to capacity building through the implementation of approximately 80 adaptation-related projects at national, regional and global levels. UNEP's Flagship Programme of Ecosystem-based Adaptation represents a ground-breaking shift in focus in the realm of climate change adaptation, which has been commended at the recent 17th meeting of the Conference of the Parties to the UNFCCC (CoP17). The EBA approach is multidisciplinary in nature, and involves managing ecosystems to build their resilience, and use ecosystem services to promote climate change adaptation and disaster risk management. This approach has been endorsed by IUCN and the EC, and provides a platform for engaging a broad range of stakeholders and sectors in the adaptation process. The adaptation measures proposed in the project are well within the scope of UNEP's current work on climate change.

The GEF Council paper (C.31/15) outlines the comparative advantages of UNEP through providing GEF with the best available science and knowledge upon which to base investments, provision of expertise on early warning on environmental and climate change, as well as considerable experience in the piloting of successful innovative approaches and the implementation of adaptive learning. The LDCF project builds upon this comparative advantage. In addition, GEF Council paper (C.28/18) also details UNEP's comparative advantage areas as including "developing and using climate information to effect changes in relevant sectoral policies based on climate science", an area which is addressed by the LDCF project.

The project is also consistent with UNEP's work in the water sector, built on the UNEP Water Policy and Strategy as well as the achievements from the EMINWA (Environmentally-sound Management of Inland Waters) program and other programs falling under the scope of IWRM. Within this focal area, UNEP draws on its expertise in assessment and monitoring, generation and application of knowledge and approaches for the better management of water systems. As UNEP continues to move towards implementing its water mandates as defined by its Governing Council, its activities in this focal area take as reference ecosystem based approaches.

UNEP has had a country presence in Afghanistan since 2002, and has been focussed on finding Afghan solutions to Afghan problems over this entire period. Much of UNEP's work in Afghanistan has been focussed at building capacity at the national level, and as a consequence has been crucially involved in building technical capacity, establishing strong environmental institutions and developing laws and policies centred on environmental issues. It consequently has a strong network of personal and political linkages with relevant governmental and non-governmental agencies crucial to the enhancing of Afghanistan's national adaptive capacity. As the implementing agency for both the NAPA and NCSA process as well as the development of the INC, UNEP is well-versed in the national priorities with respect to climate change and understands the government agencies' institutional needs and capabilities with respect to climate change adaptation. UNEP also has extensive

field expertise in the establishment of successful field-level projects, ensuring that lessons learned from the piloting of innovative approaches at the community level feed into national policy, and vice-versa.

Appendix 21 Letter of endorsement from NEPA on the PCDMB-UNEP support role for the execution of the project.



جمهوری اسلامی افغانستان د افغانستان اسلامي جمهوریت
اداره ملی حفاظت محیط زیست د چاپیریال ساتنې ملی اداره

Islamic Republic of Afghanistan
National Environmental Protection Agency
Executive Office



Date: 22/May/2012

No: 16

To: Mr. Ibrahim Thiaw
Director,
Division of Environmental Policy Initiatives (DEPI)
UNEP
Nairobi, Kenya

Subject: Least Developed Countries Fund, Climate Change Adaptation Project for Afghanistan

Dear Mr Ibrahim Thiaw

I am pleased to inform you that the Government of the Islamic Republic of Afghanistan has now completed the project preparation phase for the Least Developed Country Fund project "Building Capacity for Climate Change Resilience in Afghanistan".

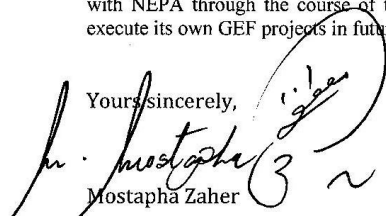
Please refer to our letter to UNEP DGEF (*Dated April 30th 2012, No. 06, Re: Endorsement for UNEP to Support the Preparation of LDCF project document*) regarding the Government of Afghanistan's commitment to participate in this project.

As such we would like to start the above mentioned project "Building Capacity for Climate Change Resilience in Afghanistan" as soon as possible.

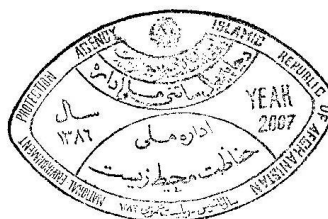
As Afghanistan is still a country with nascent financial and administrative systems in government we are in need of your close support for this Building Capacity for Climate Change Resilience in Afghanistan Project. In my capacity as GEF Operational Focal Point for the Government of the Islamic Republic of Afghanistan, I would like to authorize UNEP DEPI, Post Conflict and Disaster Management Branch, to execute the project on behalf of NEPA.

UNEP PCDMB will work closely with my senior management in NEPA to ensure capacity is built with NEPA through the course of the project that allows Afghanistan further sovereignty and capacity to execute its own GEF projects in future.

Yours sincerely,


Mostapha Zaher

Mostapha Zaher
Director - General (Independent Charge)
National Environmental Protection Agency
Member of the Council of Ministers
Advisor to the President on the Environment
GEF Operational Focal Point
ABS Inter-Governmental Committee CBD National Focal Point
SACEP National Focal Point
CIF - World Bank Focal Point



Appendix 22 Terms of Reference for key project groups, staff and sub-contractors.

A 22.1 Terms of Reference for Project Support Board (PSB)

The National Climate Change Committee (NCCC), as the government-designated body for climate change coordination in Afghanistan, will be the project support board. A UNEP representative will sit on the PSB. Overall, the PSB will serve as decision-making support, as appropriate throughout project implementation. The current terms of reference and individuals/agencies sitting on the NCCC are detailed in Appendix 9.

Responsibilities

- Ensure compliance with national policies and priorities.
- Establishing policies to define the functions, responsibilities, and delegation of powers for the implementing agencies and the project team.
- Providing overall guidance on budget management and project activities.
- Facilitating coordination of project activities across institutions.
- Making decisions on issues brought to its attention by the PSC, SA and any other members of the project team.

A 22.2 Terms of Reference for Project Steering Committee (PSC)

Background

The PSC will be responsible for undertaking management-related and technical decisions for the project in accordance with this ToR and providing guidance and direction for the project on a regular basis.

The PSC will review and approve the AWP and reports and six-monthly work plans and reports. Based on approved six-monthly plans, the PSC will submit the disbursement to the PSB for approval. The PSC is required to authorise any substantive deviation from the agreed AWP. The PSC will ensure that necessary resources are committed, and will arbitrate on any conflicts within the project or negotiate a solution to any problems between the project and external bodies. In addition, the PSC will approve the responsibilities of the NPC. The PSC will receive guidance from the PSB regarding funding and implementation.

The PSC will comprise the following members:

- Director Generals from key ministries and agencies: NEPA, ANDMA, MAIL, MEW and AMA.
- Relevant implementation NGOs
- Provincial governors and
- A representative from UNEP.

In addition, the PSC will include, as support staff, the NPC and the SA. The PSC will be chaired by NEPA. The PSC will meet at least six-monthly or as required by the Chair of the PSC.

Scope of Work

Specific responsibilities of the PSC are as follows:

- Ensure that project objectives are fulfilled in an effective and efficient manner.
- Approve work plans and budgets, and other reports that may be required.
- Ensure effective quality assurance and financial reporting requirements.

- Ensure institutional coordination and facilitate an effective communication and decision-making process between Government, implementation partners, Civil Society and other key actors.
- Monitor and evaluate project implementation to ensure consistency with the approved work plans and results framework of the project.
- Review, revise and approve ToRs for staff, consultants and contractors required to assist in project implementation, as proposed by the NPC.
- Facilitate interactions between the NPC/project team and the relevant ministries or government agencies, in order to fully enable project interactions.

A 22.3 Terms of Reference for National Project Coordinator (NPC)

Scope of Work

The NPC will lead the project team and provide overall operational management for the successful execution and implementation of the project. The NPC has the daily responsibility for management, coordination, and supervision of the implementation of the project and delivery of the results in accordance with the project document and agreed work plans. The NPC will be responsible for financial management and disbursements, with accountability to the government, and UNEP. The NPC will report to the PSC and the PSB.

The responsibilities of the NPC will include:

- Oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs.
- Report to the NCCC and PSC regarding project progress.
- Develop and facilitate implementation of a comprehensive monitoring and reporting system.
- Ensure timely preparation of detailed annual work plans and budgets for approval by PSC.
- Assist in the identification, selection and recruitment of staff, consultants and other experts as required.
- Supervise, coordinate and facilitate the work of the administrative/technical team (consisting of the assistant coordinator, finance/administration staff and national and international consultants).
- Control expenditures and assure adequate management of resources.
- Establish linkages and networks with on-going activities by other government and non-government agencies.
- Provide input to management and technical reports and other documents as described in the M&E plan for the overall project. Reports should contain assessments of progress in implementing activities, including reasons for delays, if any, and recommendations on necessary improvements.
- Inform the NCCC, without delay, of any issue or risk which might jeopardise the success of the project.
- Liaise and coordinate with UNEP on a regular basis.

Qualifications

- Master's degree in environment, natural resources management, agriculture or a closely related field.
- A minimum of 10 years relevant work experience.
- Demonstrated solid knowledge of environment and ecological restoration.
- Experience in the public participation development process associated with environment and sustainable development an asset.
- Experience in working and collaborating within governments an asset.

- Excellent knowledge of English including writing and communication skills.

Reporting

The NPC will be a staff member of NEPA and will report to the PSC. The NPC will work closely with the PSC, SA and UNEP to ensure the availability of information on progress and performance in the implementation of the project.

A 22.4 Terms of Reference for the Senior Adviser (SA)

Scope of Work

The SA will provide technical guidance on the implementation of the project to the NPC. The position of SA is likely to be filled by an international consultant, because the technical expertise required is currently unavailable within Afghanistan.

Responsibilities

- i) Provide quality assurance and technical review of project outputs.
- ii) Undertake technical review of project outputs (e.g. studies and assessments).
- iii) Assist in the drafting of TORs for technical consultancies.
- iv) Supervise the work of consultants.
- v) Assist in monitoring the technical quality of project M&E systems (including AWP, indicators and targets).
- vi) Conduct the financial administrative reporting and the PIR.
- vii) Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.
- viii) Provide a technical supervisory function to the work carried out by national technical advisors, and consultants hired by the project.
- ix) Assist in knowledge management, communications and awareness-raising.
- x) Facilitate the development of strategic regional and international partnerships for the exchange of skills and information related to climate change adaptation.

Qualifications

- At least an advanced post-graduate at or above M.Sc. level in climate change adaptation or a related discipline such as disaster risk reduction environmental management, natural resources management, agriculture, water resources management.
- A minimum of 5 years' experience in a senior technical lead position with planning and management of environmental and/or natural resources management programmes in developing countries.
- A minimum of 5 years in a senior technical position involved in institutional strengthening and capacity building.
- Previous similar experiences in provision of technical support to complex projects.
- Experience from Afghanistan or Central Asia region would be an advantage.
- Good communication and computer skills.
- Fluent in spoken and written English.

Reporting

The SA will report to the chair of the PSC. The SA will cooperate with the chair of the NCCC and the NPC to ensure the availability of information on progress and performance in the implementation of the project. In the implementation of his/her duties, the SA will work in close collaboration with UNEP DEPI, and in consultation with which will take decisions for implementation and decision making of the project. The SA is also responsible for updating the UNEP DEPI/PCDMB country representative regarding project progress, and the country representative will ensure that the UNCT is informed.

A 22.5 Terms of Reference of the Administrative and Financial Assistant

An administrative and financial assistant will report to the NPC.

Responsibilities

- Standardise the finance and accounting systems of the project while maintaining compatibility with the government and UNEP financial accounting procedures.
- Prepare revisions of the budgets and assist in the preparation of the AWP.
- Comply and verify budget and accounting data by researching files, calculating costs, and estimating anticipated expenditures from readily available information sources.
- Prepare status reports, progress reports and other financial reports.
- Process all types of payments requests for settlement purposes including quarterly advances to the partners upon joint review.
- Prepare periodic accounting records by recording receipts, disbursements (ledgers, cash books, vouchers, etc) and reconciling data for recurring or financial special reports and assist in preparation of annual procurement plans.
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.
- Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.

A 22.6 Terms of Reference for the National Technical Advisors (NTA)

Under the supervision of the NPC, two NTAs will be hired to coordinate and monitor implementation of activities at provincial level. Each NTA will be responsible for coordination of activities within two provinces. The NTAs will work closely with the NPC and the SA to effectively manage the project at local level.

Responsibilities

- Act as a liaison with provincial authorities and institutions.
- Oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs in provinces.
- Report to the NPC and SA regarding project progress. Reports should contain assessments of progress in implementing activities, including reasons for delays, if any, and recommendations on necessary improvements.
- Support the NPC in developing and facilitating implementation of a comprehensive monitoring and reporting system.
- Support in the preparation of detailed annual work plans and budgets for approval by PSC.
- Supervise, coordinate and facilitate the work of the technical staff in the provinces.
- Provide input to management and technical reports, and other documents as described in the M&E plan for the overall project.
- Participate in the PSC meetings and coordinate project site visits.

Qualifications

- Bachelor degree in environment, natural resources management, agriculture or a closely related field.
- A minimum of 5 years relevant work experience.
- Demonstrated solid knowledge of environment and ecological restoration.
- Experience in the public participation development process associated with environment and sustainable development an asset.
- Experience in working and collaborating with local authorities an asset.

- Excellent knowledge of English including writing and communication skills as well as fluency in major local languages in the provinces.

A 22.7 General Terms of Reference for International Consultants

The types of international consultants required by the project are included after the project budget in Appendix 1. These consultants will be hired to perform the following tasks:

- Collect data.
- Provide advice relevant to their field.
- Monitor interventions.

Additionally, the international consultants must be experts in their field, with experience in climate change, capacity building, and research and information development. The international consultants should have good knowledge and understanding of Afghanistan's climate change risks and an appropriate M.Sc. degree and a minimum of 5 years' experience or an appropriate bachelor's degree and 10 years' experience in their field of expertise. Fluency in spoken and written English is required and special preference will be given to international consultants who can speak and understand Dari.

A 22.8 General Terms of Reference for National Consultants

Local expertise will be sourced where possible in place of international expertise in order to strengthen in-country capacity. National consultants will be hired by the project to:

- Collect data.
- Provide advice relevant to their field.
- Monitor interventions.

Additionally, the national consultants must be experts in their field, ideally with experience in climate change, capacity building, and research and information development. Additionally, they should have good knowledge and understanding of Afghanistan's climate change risks and an appropriate M.Sc. degree and a minimum of 5 years' experience or an appropriate bachelor's degree and 10 years' experience in their field of expertise. National consultants need to be fluent in spoken and written English as well as in local languages.

The hiring procedures to be followed for both international and national consultants must include a transparent and competitive process based on normal UNEP procedures.

A 22.9 General Terms of Reference for national focal points/ teams

The ToRs of the national focal points and teams in the different ministries will be drafted upon initiation of the project and endorsed by the PSC.

Appendix 23 Co-financing commitment letters from project partners.

A 23.1 Letter of project endorsement from the GEF focal point.



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اداره ملی حفاظت محیط زیست د چاپیریال ساتنې ملی اداره
Islamic Republic of Afghanistan
National Environmental Protection Agency



Date: 30 April 2012

Executive Office

No:-----6

To:

Maryam Niamir-Fuller
Director, GEF Coordination Office
United Nations Environment Programme
Nairobi, Kenya
maryam.niamir-fuller@unep.org

Subject: Endorsement for the project proposal 'Building Adaptive Capacity and Resilience to Climate Change in Afghanistan'

Dear Ms. Maryam Niamir-Fuller,

In my capacity as GEF Operational Focal Point for the Government of the Islamic Republic of Afghanistan, I confirm that the above project proposal (a) is in accordance with the government's national priorities, including the priorities identified in the National Adaptation Plan of Action, and the commitments made by Afghanistan under the relevant global environmental conventions and (b) has been discussed with relevant stakeholders, including the UNFCCC focal point, in accordance with GEF's policy on public involvement.

Accordingly, I am pleased to endorse the preparation of the above project proposal with the support of UNEP. If approved, the proposal will be prepared and implemented by the National Environmental Protection Agency. Furthermore, I kindly request that UNEP to provide a copy of the project document for NEPA's records before it is submitted to the GEF Secretariat for the CEO's endorsement.

I understand that the total GEF financing being requested for this project is 6,029,000 USD (Six Million and Twenty Nine Thousand United States Dollars) inclusive of project preparation grant (PPG) fee of 100,000 USD (One Hundred Thousands United States Dollars) and Agency fee (10%) to UNEP for project cycle management services associated with this project.

With best wishes


Mostapha Zaher

Mostapha Zaher
Director-General
National Environmental Protection Agency
Member of the Council of Ministers
Advisor to the President on the Environment
GEF Operational Focal Point
ABS Inter-Governmental Committee National Focal Point
CIF-World Bank Focal Point

Kabul - Islamic Republic of Afghanistan

cc:

UNFCCC Focal Point
UNEP-Afghanistan Programme

A 23.2 Letter of co-finance commitment from AMA.

April 29th 2012

To:

Dr. Maryam Niamir-Fuller
Director, GEF Coordination Office
United Nations Environment Programme
Nairobi, Kenya
maryam.niamir-fuller@unep.org

Subject: Commitment of Afghanistan Meteorological Authority, Ministry of Transport and Civil Aviation to the Least Developed Countries Fund Climate Change Adaptation Project for Afghanistan-Baseline Projects

In my capacity as Director of the **Afghanistan Meteorological Authority, Ministry of Transport and Civil Aviation** for Afghanistan, I confirm that the following existing government projects will cooperate and interact with the LDCF project "Building adaptive capacity and resilience to climate change in Afghanistan".

- 1) Agro-Meteorology (Agromet); a program assisting the Afghan Government in collecting and analyzing agricultural and meteorological data as it relates to crop production, irrigation, water supply, energy, and aviation. Continuous monitoring of key weather parameters can provide the earliest indications of potential crop failures and subsequent food shortages and exchanging metrological data at the national, regional and global on WMO procedures.
- 2) Short term and long term weather forecasting including seasonal forecast, drought monitoring ,flood assessment and prediction , research on climate change impacts ,desertification ,climate services ,Early Warning Syatem.
- 3) Rehabilitation of Afghanistan Meteorological Authority with provision of MESSIR System for deployment at Kabul. A strong Afghan meteorological capacity, especially with data is important for assessing Afghanistan's water supply demand and resources , estimating snow melt and water runoff, avalanche gauging the need for irrigation and hydropower, and validating satellite data.

The engagement of the LDCF project preparation team with these programmes over the course of 2011/2012 has established linkages upon which we hope to capitalise. The total funding committed to identified as baseline activities for the LDCF under these programmes is US\$ 1,000,000.

I consent to the inclusion of baseline resources from both these projects to be accepted in the accounting of funds for the Least Developed Country Fund project.

Please contact my office with any additional questions or clarifications

Sincerely,

Director: Mohammad Ishaq Noori
Afghanistan Meteorological Authority, Ministry of Transport and Civil Aviation

Copy to:
GEF Operational Focal Point for Afghanistan

A 23.3 Letter of co-finance commitment from MRRD.



د کوردياړ غونډۍ او برابري وزارت
وزارت ايجاد او کشف د نيات

د افغانستان اسلامي جمهوريت
جمهوری اسلامی افغانستان



Islamic Republic of Afghanistan
Ministry of Rural Rehabilitation & Development

1 May 2012

Ms Maryam Niamir-Fuller
Director, GEF Coordination Office
United Nations Environment Programme
Nairobi
Kenya

Dear Ms Niamir-Fuller

Least Developed Countries Fund: Building adaptive capacity and resilience to climate change in Afghanistan

Following discussions with United Nations Environment Programme in Kabul, I would like to confirm my Ministry's support for the proposed Global Environment Fund (GEF) intervention for the Least Developed Countries Fund project 'Building adaptive capacity and resilience to climate change in Afghanistan'.

The intended outputs from this intervention will provide important added value to existing work undertaken by Ministry-led programmes, including the National Solidarity Programme (NSP) and National Area-Based Development Programme (NABDP), working in support of rural development and rehabilitation in Afghanistan.

We believe that the work envisaged by the intervention will build on and contribute to underpinning NSP and NABDP activities in the provinces of Badakhshan, Balkh, Bamyan and Daykundi. It will add value to the activities of these programmes and strengthen their long-term impact on the communities they serve in the areas of climate change adaptation and building resilience.

The proposed intervention is particularly important given the programmatic investment we will be making in these provinces this financial year, estimated annually at not less than US\$10m in Badakhshan, not less than US\$202m in Balkh, US\$4m in Bamyan, and US\$5m in Daykundi. Read-across and lesson-learning for our sole- or joint-managed other programmes in these provinces (the National Rural Access Programme, the Afghanistan Rural Enterprise Development Programme, the Comprehensive Agriculture and Rural Development Facility), and for the work of programmes delivered by solely or jointly by other ministries, will be of especial value. I confirm our intention to provide suitable and secure office space, as well as administrative support for the staff allocated to this intervention.

آدرس: دارالاصان واټ سړک ټيبله باغ ، کابل افغانستان ، ټيلفون: (+93) 752003073 و 70234629
(+93) ، آدرس انټرنټ: www.mrrd.gov.af

The specific LDCF Climate Change project intervention locations in these provinces have an estimated baseline Ministry-led input of US\$12.4m, of which around US2.4m is for NABDP and the balance for NSP activities.

I consent to the baseline sums identified above being reported in the accounting of funds for the Least Developed Country Fund project, and look forward to the development of additional activities that will consolidate the gains of the NSP and NABDP in response to changing climate conditions.

Please feel free to contact my office with any additional questions or clarifications.

With kind regards,



Wais Ahmad Barmak
Minister
Ministry of Rural Rehabilitation and Development

CC:
GEF Operational Focal Point for Afghanistan
Country Programme Manager, UNEP Afghanistan

A 23.4 Letter of co-finance commitment from NEPA.



جمهوری اسلامی افغانستان د افغانستان اسلامي جمهوریت
اداره ملی حفاظت محیط زیست د چاپیریال ساتنی ملی اداره

Islamic Republic of Afghanistan

National Environmental Protection Agency



Date: 30 April 2012

Executive Office

No: 4

To: Maryam Niamir-Fuller
Director, GEF Coordination Office
United Nations Environment Programme
Nairobi, Kenya
maryam.niamir-fuller@unep.org

Subject: Least Developed Countries Fund Climate Change Adaptation Project for Afghanistan-Baseline Projects Statement

Dear Ms. Maryam Niamir-Fuller,

In my capacity as the Director-General of the National Environmental Protection Agency of the Government of the Islamic Republic of Afghanistan, I hereby confirm that NEPA will actively cooperate and interact with the LDCF project entitled "Building Adaptive Capacity and Resilience to Climate Change in Afghanistan".

NEPA will commit resources at the national level in Kabul and at provincial level in the Provinces of Bamyan, Balkh, Badakshan and Daikundi respectively the sum of USD. 1.0 Million (One Million United States Dollars) for office space, staff time, travel, as well as, operational support to the project.

NEPA sets the agenda for sustainable environmental management in Afghanistan as enshrined under Article 15 of the Constitution and the Environment Law. Our activities include national and provincial environmental management offices, engagement in law, policy, technical and scientific guidance to line ministries, provincial and local government, as well as, to our citizens.

I hereby consent to the inclusion of NEPA's baseline resources in the accounting of funds for the Least Developed Country Fund project, and look forward to the development of additional activities that will consolidate the progress made by NEPA thus far.

I thank you, in advance, for your kind and sustained cooperation.

Please accept, Ms. Niamir-Fuller, the assurances of my highest consideration.

With best wishes,
Mostapha Zaher

Mostapha Zaher
Director-General
National Environmental Protection Agency
Member of the Council of Ministers
Advisor to the President on the Environment
GEF Operational Focal Point
ABS Inter-Governmental Committee National Focal Point
CIF-World Bank Focal Point

Kabul - Islamic Republic of Afghanistan

cc:
UNEP-Afghanistan Programme

Appendix 24 Summary of reporting requirements and responsibilities.

Reporting requirements	Due date	Responsibility
Inception Workshop Report	1 month after Project Inception Workshop.	<ul style="list-style-type: none"> ▪ NPC ▪ NTAs ▪ UNEP Task Manager (TM) ▪ SA
Expenditure report accompanied by explanatory notes		<ul style="list-style-type: none"> ▪ NPC ▪ Finance and Administration Assistant
Cash Advance request and details of anticipated disbursements		<ul style="list-style-type: none"> ▪ NPC ▪ Finance and Administration Assistant
Supervision Plan	Before the end of the LDCF project's inception phase.	<ul style="list-style-type: none"> ▪ UNEP
Progress reporting	Quarterly	<ul style="list-style-type: none"> ▪ NPC ▪ SA ▪ NTAs
Audited report for expenditures for year ending 31 December	Yearly on or before 30 June.	<ul style="list-style-type: none"> ▪ NEPA/Executing partners
Inventory of non-expendable equipment	Yearly on or before 31 January.	<ul style="list-style-type: none"> ▪ NPC ▪ Finance and Administration Officer
Co-financing report	Yearly on or before 31 July.	<ul style="list-style-type: none"> ▪ NPC
PIR	Yearly	<ul style="list-style-type: none"> ▪ NPC ▪ NTAs ▪ SA ▪ UNEP TM
Minutes of PSC meetings	Quarterly (or as relevant).	<ul style="list-style-type: none"> ▪ NPC
Completion report	Within 6 months of project completion date.	<ul style="list-style-type: none"> ▪ NPC ▪ IA
Final inventory of non-expendable equipment		<ul style="list-style-type: none"> ▪ NPC
Equipment transfer letter		<ul style="list-style-type: none"> ▪ NPC
Final expenditure statement	Within 3 months of project completion date.	<ul style="list-style-type: none"> ▪ NPC ▪ UNEP
Mid-term evaluation	Midway though project lifetime.	<ul style="list-style-type: none"> ▪ NPC ▪ SA ▪ UNEP TM ▪ External Consultant
Final evaluation	At least 3 months prior to the project end date.	<ul style="list-style-type: none"> ▪ NPC ▪ NTAs ▪ SA ▪ UNEP TM ▪ External Consultant
Final audited report for expenditures of project	Within 6 months prior to project completion date.	<ul style="list-style-type: none"> ▪ EA (NEPA)
Independent terminal evaluation report	Within 3 months prior to project completion date.	<ul style="list-style-type: none"> ▪ NPC ▪ NTAs ▪ SA ▪ UNEP TM

Appendix 25 Decision-making flowchart and organisational chart.

See Section 4: Institutional Framework and Implementation Arrangements and Figure 7.

Appendix 26 Standard Terminal Evaluation TOR.

Below are the standard Terminal Evaluation TORs of UNEP.

Objective and Scope of the Evaluation

The objective of the terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results.

Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP and the UNEP Task Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP Task Manager, key representatives of the executing agencies and the UNEP. Any comments or responses to the draft report will be sent to UNEP for collation and the consultant will be advised of any necessary or suggested revisions.

Key Evaluation principles

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions "***what happened?***" and "***what would have happened anyway?***". These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition, it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases, this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

Appendix 27 Draft Procurement Plan.

Financial management of the project will be undertaken by UNEP, due to complications with the national procurement process. Consequently, the GEF funds will be disbursed through contracts, MOUs or LoAs between the UNEP and the individual consultants, under guidance from the EA. The national partner institutions will contribute to the outcomes based on their respective expertise and financial capabilities.

The table below specifies the technical assistance consultancies planned for Outcomes 1, 2, 3 and 4 (including both local and international consultants).

Local	\$/ person months	Estimated person months	Tasks to be performed
2 x National Technical Assistants	2,100	48 (ea)	<p>The National technical assistants will have the following responsibilities:</p> <ul style="list-style-type: none"> i) act as a liaison with provincial authorities and institutions; ii) oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs in provinces; iii) report to the NPC and SA regarding project progress. Reports should contain assessments of progress in implementing activities, including reasons for delays, if any, and recommendations on necessary improvements; iv) support the NPC in developing and facilitating implementation of a comprehensive monitoring and reporting system; v) support in the preparation of detailed annual work plans and budgets for approval by PSC; vi) supervise, coordinate and facilitate the work of the technical staff in the provinces; vii) provide input to management and technical reports and other documents as described in the M&E plan for the overall project; viii) participate in the PSC meetings and coordinate project site visits; and ix) shadow the role of the SA in order to build take over the supervisory technical role in the later stages of the LDCF project.
Workshop facilitator	1,500	9.8	<p>The national consultant (NC) will support the international consultant (IC) or other NCs in the organisation of training workshops by preparing materials and sharing information with participants. The NC will be required to facilitate workshops for:</p> <ul style="list-style-type: none"> i) activity 1.1.4; ii) activity 2.3.4. and iii) activity 3.4.1.
Hydrological modelling specialist	1,800	8.2	<p>The NC will work closely with IC to:</p> <ul style="list-style-type: none"> i) identify appropriate models and climate change vulnerability tools (activity 1.1.5); and ii) undertake hydrological modelling to assess climate change risks and produce vulnerability maps (activity 1.1.6).
Hydrological	1,575	6	The NC will provide technical assistance in:

Local	\$/ person months	Estimated person months	Tasks to be performed
engineer			i) the design and construction of check dams and micro-irrigation improvements in Badakhshan (activity 3.1.1.1)
EWS/disaster management specialist	1,700	6.8	The NC will work closely with the IC to : i) assess the current state of EW and reporting systems (activity 1.2.1); ii) examine options for climate EWS (activity 1.2.2); iii) develop model and SOPs for EWS (activity 1.2.3); and iv) support the provision of necessary infrastructure to communities in trial areas to facilitate EW delivery, and train communities, local officers and national officials to test EWS (activity 1.2.4).
Climate change adaptation specialist	1,800	23.3	The NC will: i) prepare policy and technical briefs on climate change risks (activity 1.3.1); ii) support IC on policy makers climate change training course (activity 1.3.2); iii) evaluate the national climate change knowledge base and the effectiveness of integration into national policies (activity 2.2.1); iv) provide capacity building to the NCCC in the form of training and policy briefings (activity 2.2.2); v) undertake a gap analysis of the national development plan and polices (activity 2.3.1); vi) develop an overarching climate change policy in conjunction with the IC and relevant stakeholder consultation (activity 2.3.3); vii) develop training tools for IWM (activity 3.4.2); viii) incorporate training tools in national public service training (activity 4.3.3); and ix) identify additional locations and interventions to achieve long-term adaptation goals (activity 4.5.2).
Policy adviser	1,630	10.3	The NC will work closely with IC to : i) undertake dynamic systems modelling to investigate effects of climate change policy on national development priorities (activity 2.3.2); ii) develop an overarching climate change strategy for Afghanistan; and iii) promote integration of climate change into policies for all relevant sectors (activity 2.3.4).
Restoration ecologist	1,800	9.3	The NC will work closely with the IC to provide technical assistance to identify pilot activities that will reduce climate change vulnerability in the selected project sites through use of appropriate technologies for improved water use efficiency (output 3.1).
Socio-economist	1,570	10.7	The NC will : i) identify and promote opportunities for alternative crops and agricultural practices (output 3.2); and ii) conduct socio-economic assessment at the local level for valuing ecosystems goods and service (output 3.3).
Ecosystem management	1,800	7	The NC will provide technical assistance to: i) establish 200 ha of multiple benefit indigenous fruit and

Local	\$/ person months	Estimated person months	Tasks to be performed
specialist			<p>nut trees and rangeland species (output 3.2)</p> <p>ii) undertake a study to assess the value of various multiple-benefit plant species for the restoration of degraded ecosystems and provision of enhanced ecosystem services under conditions of climate change (output 3.3).</p>
M&E Expert	1,500	11.2	<p>The M&E Expert will:</p> <p>i) determine the cost effectiveness of each proposed intervention (activity 4.3.1);and</p> <p>ii) undertake annual review of the project including IMIS data.</p>
Climate change education specialist	1,500	16.8	<p>The NC will assist the IC and NTAs to:</p> <p>i) undertake a training needs assessment in climate change for relevant government bodies (activity 2.4.1);</p> <p>ii) provide training to build capacity in various sectors (activity 2.4.2);</p> <p>iii) develop training tools for IWM and ecosystem management at a local level (activity 3.4.2);</p> <p>iv) conduct training workshops on climate change risks and adaptation within local communities (activity 3.4.3);</p> <p>v) formalize training tools for adaptation and flood/drought prevention (activity 4.3.2);</p> <p>vi) incorporate training tools into public service training (activity 4.3.3); and</p> <p>vii) develop climate change and adaptation lessons for integration into curricula and provide teacher training (activity 4.4.2)</p>
Publicity expert	1,500	7	<p>The NC will assist the LDCF by undertaking the following activities:</p> <p>i) conduct national public awareness campaign on the risks of climate change and potential benefits of adaptation measures (activity 4.4.1); and</p> <p>ii) disseminate information about climate change and adaptation (activity 4.4.4).</p>
International	\$/person week	Estimated person weeks	Tasks to be performed
UNEP Senior Adviser	2500	171	<p>This position is specifically requested by NEPA in order to facilitate the project implementation due to the lack of capacity within the country. The SA will fulfill the following functions:</p> <p>i) provide quality assurance and undertake technical review of project outputs (e.g. studies and assessments);</p> <p>ii) assist in the drafting of TORs for technical consultancies;</p> <p>iii) supervise the work of consultants;</p> <p>iv) assist in monitoring the technical quality of project M&E systems (including AWP, indicators and targets);</p> <p>v) conduct the financial administrative reporting and the</p>

International	\$/person week	Estimated person weeks	Tasks to be performed
			<p>PIR;</p> <p>vi) provide advice on suitable approaches and methodologies for achieving project targets and objectives;</p> <p>vii) provide a technical supervisory function to the work carried out by national technical advisors, and consultants hired by the project;</p> <p>viii) develop strategic regional and international partnerships to facilitate capacity development and regular exchanges of data for climate change;</p> <p>ix) assist in knowledge management, communications and awareness raising; and</p> <p>x) support development of relevant funding proposals (activity 4.5.3).</p>
Institutional development specialist	2500	10	<p>The consultant will:</p> <p>i) undertake an institutional mapping exercise and training needs in assessment, monitoring, prediction and interpretation of climate change risks (activity 1.1.1); and</p> <p>ii) develop a strategic plan and data network for climate and information management and exchange (activity 1.1.2).</p>
Climate change and water resource modeller	2500	27	<p>The consultant will:</p> <p>i) provide training on climate change, hydrological modelling (activity 1.1.4);</p> <p>ii) identify appropriate models and climate change vulnerability tools (activity 1.1.5); and</p> <p>iii) undertake hydrological modelling to assess climate change risks and produce vulnerability maps (activity 1.1.6).</p>
EWS/disaster management specialist	2500	8	<p>The consultant will:</p> <p>i) examine options for climate change early warning systems (activity 1.2.2); and</p> <p>ii) develop model and SOPs for an EWS through stakeholder participation and expert analysis (activity 1.2.3).</p>
Adaptation specialist	2500	107	<p>The IC will play an integral role in the functioning of the project, due to the lack of national capacity with respect to climate change adaptation. The IC will work closely with the NC to:</p> <p>i) produce technical briefs on climate change risks (activity 1.3.1);</p> <p>ii) provide technical assistance on the training on mainstreaming climate change adaptation (activity 1.3.2);</p> <p>iii) undertake a survey of tools and methodologies for identification, evaluation and mainstreaming of adaptation measures (activity 2.1.1)</p> <p>iv) develop a climate change toolkit (activity 2.1.2);</p> <p>v) facilitate planting of drought resilient crop species and cultivars (output 3.2).</p>

International	\$/person week	Estimated person weeks	Tasks to be performed
			vi) provide technical assistance in developing climate change policy (activity 2.3.3); vii) develop training tools for IWM and ecosystem management (activity 3.4.2); viii) formalize training tools for adaptation and flood/drought prevention (activity 4.3.2); iii) identify additional locations and interventions to achieve long-term adaptation goals (activity 4.5.2); and iv) support the provision of necessary infrastructure to communities in trial areas to facilitate EWS delivery, train communities and local officers in EWS procedures and test EWS (activity 1.2.4).
International negotiations specialist	2500	5	The consultant will provide training on international negotiations and funding applications to government officials (activity 2.2.3).
Dynamic systems modeller	2500	12	The consultant will undertake dynamic systems modelling to investigate effects of climate change policy on national development priorities (activity 2.3.2).
Restoration ecologist	2500	12	The NC will work closely with the IC to provide technical assistance to identify pilot activities that will reduce climate change vulnerability in the selected project sites through use of appropriate technologies for improved water use efficiency (output 3.1).
Ecosystem management	2500	7	The IC will work closely with NC to provide technical assistance for: i) establish 200 ha of multiple benefit indigenous fruit and nut trees and rangeland species (output 3.2); and ii) undertake studies to assess the value of various multiple-benefit plant species for the restoration of degraded water systems and catchment areas for enhanced water catchment and flood protection (output 3.3).
Carbon market expert	2500	7	The consultant will undertake feasibility studies to assess the potential of securing carbon funding (output 3.3).
M&E expert	2500	21	The consultant will undertake the following M&E tasks: i) baseline assessment; ii) mid-term evaluation; and iii) final evaluation.

In terms of procurement of non-expendable equipment, final allocations will be undertaken during the inception period. The following are estimated costs

Items	Approximate equipment costs
Computer equipment	\$ 45,000
Computer peripherals	\$ 5,000
Computer software	\$ 115,000
Furniture	\$ 4,000

