



VULNERABILITY AND ADAPTATION

TECHNICAL ASSESSMENT
REPORT



VULNERABILITY AND ADAPTATION

TECHNICAL ASSESSMENT REPORT

AUTHOR: DIRK SNYMAN

REVIEW & EDIT: MOHAMMAD MONIB NOORI
2020/11/08



TABLE OF CONTENTS

LIST OF ABBREVIATIONS	1
EXECUTIVE SUMMARY	2
1. INTRODUCTION	8
2. BACKGROUND	9
2.1. ENVIRONMENTAL PROFILE	9
2.2. DEMOGRAPHIC PROFILE	9
2.3. ECONOMIC PROFILE	10
3. CLIMATE CHANGE PROJECTIONS	11
3.1. RECENT CLIMATE TRENDS	11
3.2. FUTURE CLIMATE CHANGE PROJECTIONS	11
3.3. CLIMATE CHANGE-INDUCED HAZARDS	13
4. SECTORAL IMPACTS OF CLIMATE CHANGE	17
4.1. WATER	18
4.2. AGRICULTURE	19
4.3. NATURAL RESOURCES	20
4.4. BUILT ENVIRONMENT	21
4.5. HEALTH	22
5. ADAPTATION PLANS AND STRATEGIES	23
5.1. NATIONAL ADAPTATION PROGRAMME OF ACTION	23
5.2. CLIMATE CHANGE STRATEGY AND ACTION PLAN / NATIONAL ADAPTATION PLAN	24
5.3. NATIONALLY DETERMINED CONTRIBUTIONS	25
5.4. TECHNOLOGY NEEDS ASSESSMENT	26
6. FUNDING SOURCES	27
6.1. GLOBAL ENVIRONMENT FACILITY	27
6.2. ADAPTATION FUND	29
6.3. GREEN CLIMATE FUND	29
6.4. ADAPTATION FOR SMALLHOLDER AGRICULTURE PROGRAMME	30
6.5. INTERNATIONAL CLIMATE INITIATIVE	30
6.6. GOVERNMENT EXPENDITURE	31
6.7. BILATERAL DONORS	31
6.8. MULTILATERAL DEVELOPMENT BANKS	31
7. PROPOSED ADAPTATION ACTIONS	32
7.1. CLIMATE-RESILIENT INTEGRATED WATER RESOURCE MANAGEMENT	32
7.2. DISASTER RISK REDUCTION	36
7.3. CLIMATE-RESILIENT AGRICULTURE	39
7.4. ECOSYSTEM-BASED ADAPTATION FOR CLIMATE-RESILIENT NATURAL RESOURCE MANAGEMENT	43
7.5. URBAN RESILIENCE AND HUMAN HEALTH	45
8. WAY FORWARD	49
8.1. MATCHING OF FUNDING MECHANISMS TO PRIORITIES	49
8.2. OBTAINING ACCREDITATION FOR NATIONAL IMPLEMENTING ENTITIES	50
8.3. CAPACITY STRENGTHENING OF NATIONAL INSTITUTIONS	50

LIST OF ABBREVIATIONS

ACCSAP	Afghanistan Climate Change Strategy and Action Plan
ANDMA	Afghanistan National Disaster Management Authority
ASAP	Adaptation for Smallholder Agriculture Programme
ASDRR	Afghanistan Strategy for Disaster Risk Reduction
CSA	Climate-smart agriculture
DRR	Disaster risk reduction
EbA	Ecosystem-based adaptation
EWS	Early warning systems
GCF	Green Climate Fund
GEF	Global Environment Facility
IFAD	International Fund for Agricultural Development
IKI	International Climate Initiative
IWRM	Integrated water resource management
LDCF	Least Developed Countries Fund
MAIL	Ministry of Agriculture, Irrigation and Livestock
MDBs	Multilateral development banks
MRRD	Ministry of Rural Rehabilitation and Development
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contributions
NEPA	National Environmental Protection Agency
RCP	Representative Concentration Pathway
SCCF	Special Climate Change Fund
TNA	Technology Needs Assessment
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

EXECUTIVE SUMMARY

The high dependence of its population on agricultural livelihoods, fragile environment, poor socio-economic development, high frequency of natural hazards and over four decades of conflict make Afghanistan vulnerable to climate change. Considerable expansion of adaptation action will be required to reduce the impacts of climate change such as loss of lives and livelihoods as well as damage to infrastructure and economic assets. This report sets out to identify:

- The main impacts of climate change on important sectors.
- Potential sources of funding for climate change adaptation.
- Proposed priorities for adaptation action based on national strategies and plans.

Models for optimistic and pessimistic future climate change scenarios project a temperature increase of 2.6–6.3°C by 2100. This is higher than the expected global temperature increase for the same period. There is much regional variation in the expected increase, with greater warming expected at higher altitudes. Precipitation projections for the same period indicate no significant change in total annual rainfall for the country. However, there is high regional variation within the country, while there are also expected to be shifts in the seasonality of the precipitation.

Afghanistan is prone to frequent hazards that cause losses and damages to lives, livelihoods and assets. Climate change is expected to increase the frequency and severity of such hazards. It will also have impacts on key sectors such as water, agriculture, natural resources, the built environment and human health.

While Afghanistan has high per capita water availability, this has been decreasing since the 1960s. Moreover, these water resources are not uniformly distributed across the country and some areas experience water scarcity. Climate change will exacerbate water shortages through: i) increased temperatures and thus water stress; ii) faster melting of glaciers and snowpack; and iii) loss of glacial and snow cover. Rapidly melting snow will also increase flood risk during spring and summer.

With high levels of reliance on agriculture, climate change impacts on agricultural productivity will knock-on effects on food insecurity and poverty. Recurring droughts affect millions of Afghans and are expected to cause agricultural losses of USD 3 billion. Predicted reductions in spring precipitation will impact rain-fed agriculture during critical growth periods. Increased temperatures will cause outbreaks of agricultural pests and diseases, further reducing agricultural productivity, while flooding of croplands will destroy productive assets.

Afghanistan's ecosystems provide goods and services that underpin rural livelihoods. These include fodder and forage, food, fuel, medicinal plants, construction material and nuts. However, most ecosystems in Afghanistan are severely degraded, which will be further exacerbated by climate change. Increased temperatures and variable precipitation will decrease rangeland productivity and permanently change vegetation cover. Degraded ecosystems are also more prone to erosion, flooding, avalanches and landslides. These ecosystem risks endanger the livelihoods of communities that depend on natural resources.

Infrastructure and the built environment have suffered from damages inflicted by the ongoing conflict in Afghanistan. Domestic energy production is low, despite the high potential for hydropower generation. Most of the country's roads are in poor condition which hampers access to services and markets. Rapid urbanisation has created challenges such as poor service delivery, high population density, urban poverty and poor living conditions. Climate change will have negative impacts on all aspects of the built environment. Erratic water availability and frequent flooding will affect hydropower generation. Floods can also damage roads, bridges and other transport infrastructure, further reducing access to services and markets. Urban water supplies will be affected by depleted groundwater, while flooding will damage houses (especially

in informal settlements) and other infrastructure such as industrial and manufacturing facilities. This will further exacerbate unemployment and poverty.

Afghans have poor access to health care services and limited access to improved water sources and sanitation facilities. This results in low life expectancy, chronic malnutrition and disease prevalence. Climate change will impact on health outcomes through higher temperatures and changed precipitation that may increase the spread of infectious diseases such as cholera, typhoid fever, malaria and polio. The impacts of climate change food security are likely to perpetuate chronic malnutrition. In addition, high temperatures will cause heatwaves that pose risks to children, the elderly and the infirm. This will be compounded by water stress from reduced water availability.

To address the impacts of climate change, Afghanistan has developed a number of climate change strategies and plans. These include the National Adaptation Programme of Action, Afghanistan Climate Change Strategy and Action Plan, National Adaptation Plan, Nationally Determined Contributions and Technology Needs Assessment. All of these have identified the main impacts that climate change is expected to have in Afghanistan, as well as priorities for addressing these impacts. A number of adaptation actions proposed are common between all of these plans, including:

- Improved management of watersheds and water resources
- Resilient agricultural techniques such climate-smart agriculture, agroforestry, improved irrigation, rehabilitation of traditional irrigation systems and climate-resilient crops
- Improved management of forests, rangelands and other natural ecosystems
- Disaster risk reduction, preparedness and response
- Climate information and early warning systems
- Improved health care and management of climate-related diseases
- Climate-proofing of rural and urban infrastructure
- Training and capacity development on climate change

The government of Afghanistan spent approximately USD 100 million on climate change between 2013 and 2015, but this is inadequate compared to the annual climate finance needs of USD1,078.5 million. Because public expenditure is largely reliant on donor assistance, Afghanistan will need to obtain this funding shortfall for climate action from multilateral and other funding mechanisms.

The Global Environment Facility administers three funds that can be used to support climate change adaptation. The Least Developed Countries Fund is dedicated to climate change adaptation in Least Developed Countries. The Special Climate Change Fund is also focused on climate change but is open to all developing countries. The GEF Trust Fund finances environmental interventions such as biodiversity conservation, sustainable land management and climate change mitigation and can support projects with adaptation co-benefits. Afghanistan has successfully accessed funding through the Global Environment Facility and should continue to do so for adaptation in the agriculture and natural resources sectors.

The Adaptation Fund also supports adaptation projects in developing countries. Afghanistan has registered a national designated authority with the Adaptation Fund and has so far received one project of 9.4 million USD. Accessing such funding should be seen as a high priority for projects on include climate-resilient agriculture, community-based adaptation and ecosystem-based adaptation.

The Green Climate Fund supports large-scale projects for both adaptation and mitigation. Afghanistan has received approval of a mitigation project but not yet for any adaptation projects. Accessing the Green Climate Fund should be a high priority but will be challenging without sufficient capacity for formulating proposals.

The Adaptation for Smallholder Agriculture Programme provides climate finance to smallholder farmers that is complementary the International Fund for Agricultural Development's ongoing investments into agriculture. The large number of smallholder farmers in Afghanistan makes this fund ideal for upscaling climate change adaptation and should be undertaken through government engagement with the International Fund for Agricultural Development to formulate future projects.

The International Climate Initiative finances projects on various environmental issues including climate change and implementation of national adaptation priorities. Preparation of proposals to the International Climate Initiative IKI should be a high priority for themes such as ecosystem- and community-based adaptation as well as preparation of climate change policies, strategies and plans.

Afghanistan's government spent millions of dollars per year on climate change through thousands of projects across various ministries and institutions. In the near future, this will be the most important source of funding for climate change because larger projects take a long time to be realised. Streamlining of government expenditure on adaptation will also facilitate future access to funding from multilateral sources and will enhance efficiency and provide co-financing for such projects. Consequently, improved programming of government expenditure on adaptation should be prioritised.

Afghanistan is heavily dependent on foreign aid, with various donors providing support through government, UN agencies, NGOs and other entities for climate change adaptation, food security, agriculture, resilience-building and disaster risk reduction. This aid is a significant opportunity for increasing adaptation spending but depends on advocacy and engagement with donors.

Multilateral development banks provide significant amounts of funding, particularly in sectors that are threatened by climate change. These banks can facilitate the development of climate change strategies and support transformational projects based on national priorities that show socio-economic benefits. If the low capacities for accessing climate finance, low levels of co-financing and limited proof-of-concept on the economic benefits of adaptation can be overcome, Afghanistan will be able to access to substantial projects for adaptation from multilateral development banks.

Afghanistan's primary climate change threats are floods and droughts. Climate-resilient integrated water resources management is thus a top priority to reduce threats to lives and livelihoods. This should include both "hard" (infrastructural) and "soft" (policy and institutional)

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_13656

