



Food and Agriculture
Organization of the
United Nations



AFGHANISTAN

DROUGHT RISK

MANAGEMENT STRATEGY





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MANAGEMENT STRATEGY



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MESSAGE

H.E. Eng. Nasir Ahmad Durrani, Minister, Ministry of Agriculture Irrigation and Livestock

The 2018-drought was one of the most severe droughts that impacted Afghanistan in the last four decades. It directly affected two-thirds of Afghanistan - 22 out of 34 provinces - and impacted more than 10.5 million people most severely apart from the agriculture, livestock and irrigation sectors in the country. Climate change scenarios for Afghanistan predict increasing frequency, intensity and impacts of drought in Afghanistan in the coming years. Hence, under the guidance of H.E. Dr. Mohammad Ashraf Ghani, President of Afghanistan, I requested the Food and Agriculture Organization of the United Nations (FAO) to formulate a long-term (2019- 2030) strategy for drought risk management that helps my Ministry and Afghanistan to make a paradigm shift in how we manage droughts in the future.

With technical anchoring from FAO, we have formulated this as a multi-sectoral (agriculture, livestock, NRM, water-irrigation, and disaster management) drought risk management strategy with a bold vision of making “Afghanistan drought disaster free” and a goal of “Strengthened resilience of communities, ecosystems and governance systems to drought”. This comprehensive strategy through its four priorities of: 1) Strengthening drought risk governance; 2) Improving drought vulnerability and risk assessment capacities; 3) Strengthening Drought Early Warning, Early Action and Monitoring Systems; and 4) Increasing investments in drought risk mitigation and response; and accompanying detailed plan of operations puts forth multi-sectoral and multi-phased set of actions to: (i) prevent creation of new risks and exacerbation of existing risks, (ii) mitigate and reduce existing risks, (iii) manage residual risks through preparedness, early actions and rapid response, and (iv) risk-informed

recovery and integrating drought mitigation actions in sectoral annual work-planning and budgeting. I am excited by the paradigm transformation - moving from the current approach of reactive and responsive management of drought as a disaster to an approach of proactive and anticipatory management of risks of drought - proposed by this strategy.

I am happy that this strategy aligns with Afghanistan’s national and international commitments as well as helps to take forward sectoral priorities, including food and nutrition goals, and provides a comprehensive framework for my Ministry to design drought resilience building programmes and mobilise resources for the same. I am sure this strategy along with its accompanying plan of operations - that details out sector-specific actions, results, roles, and costs - will help in managing drought risks in Afghanistan.

I take this opportunity to thank FAO for technically anchoring this highly participative - including taking along all key ministries and development partners - strategy formulation process and bringing FAO’s global expertise in supporting my Ministry to address the complex issue of drought in Afghanistan. I also thank all officials and technical staff from MAIL, MEW, MRRD, SMDMH/ANDMA, AMD, NEPA, NSIA, as well as UN Agencies, World Bank, World Meteorological Organization, and all development partners who participated in the formulation of this strategy its accompanying plan of operations.

Lastly, I wish all my best wishes for a successful implementation of this strategy over the next decade!



Eng. Nasir Ahmad Durrani
Minister of Agriculture, Irrigation and Livestock



MESSAGE

Mr. Rajendra Aryal, FAO Representative in Afghanistan

Last year in 2018 more than two-thirds of Afghanistan was directly affected by drought that resulted in around 10.5 million people being most severely affected across 22 provinces in the country. This was one of the most severe droughts in recent times in Afghanistan. It worsened the already high levels of food and nutrition insecurity in the country apart from adversely affecting the agriculture, livestock, water, health, and economic sectors. At least 300,000 people were internally displaced due to drought. Some reports also suggested increase in children dropping out of school, child labour, and marriages at earlier age amongst the drought-impacted communities. FAO's climate change experts have informed me that there will be more severe, long-lasting and frequent droughts due to climate change and other causal factors of drought in Afghanistan. This clearly indicates a need for a long-term strategy to tackle the possible future increased adverse impacts of drought in Afghanistan.

Against the backdrop of the severe 2018, FAO was requested by H.E. Eng. Nasir Ahmad Durrani, Minister, Ministry of Agriculture Irrigation and Livestock (MAIL) to formulate a long-term (2019-2030) strategy for drought risk management. The request was clear that there is an urgent need to make a paradigm shift in drought management by the Government and development partners. Responding to this clarion call, FAO provided technical support to MAIL in formulating this long-term (2019-30) drought risk management strategy as one of the response actions to the 2018 drought in Afghanistan.

Under the leadership of H.E. the Minister, MAIL, a multi-sectoral strategy with a bold vision of making Afghanistan drought disaster free has been

developed through a multi-stakeholder consultative process. The purpose of this strategy is to guide the planning, designing, implementation, and review of actions for comprehensive drought risk management in Afghanistan over the course of 2019-2030 as well as provide a framework for allocating resources for these actions.

I am excited by this comprehensive strategy that provides a dynamic framework for actions across multiple sectors, scales, timeframes, and themes. I especially appreciate this strategy's alignment with the Government's commitments to global frameworks / agreements, national sectoral priorities and resilience building programmes. I am sure the strategy document as well as its accompanying plan of operations - that details out sector-specific actions, results, roles, and costs - will help in managing drought risks in Afghanistan.

I am thankful to MAIL for providing FAO this opportunity to support in the strategy formulation process. I would like to take this opportunity to also thank all the experts and officials from MAIL, MEW, MRRD, ANDMA/SMDMHA, AMD, NEPA, NSIA, development partners - especially WMO, GWP and World Bank for reviewing working drafts of this strategy -, and technical agencies for wholeheartedly participating in the strategy formulation process and providing detailed inputs on the strategy and its accompanying plan of operations. Lastly, I thank my FAO colleagues for tirelessly working on this strategy formulation process.




Rajendra Kumar Aryal
FAO Representative in Afghanistan



ABBREVIATIONS

A-CCSAP	Afghanistan – Climate Change Strategy and Action Plan	MIS	Management of Information System
AMD	Afghanistan Meteorological Department	MoF	Ministry of Finance
A-MDPI	Afghanistan- Multi Dimensional Poverty Index	MoMP	Ministry of Mines and Petroleum
ANDMA	Afghanistan National Disaster Management Authority	MoUD	Ministry of Urban Development
ANPDF	Afghanistan National Peace and Development Framework	MRRD	Ministry of Rural Rehabilitation and Development
ANDS	Afghanistan National Development Strategy	NAPA	National Adaptation Programme of Action
ANWERC	Afghanistan Natural Water and Environment Research Centre	NCADPP	National Comprehensive Agriculture Development Priority Programme (this Programme is now reconfigured as CAD-NPP)
ARIA	Agriculture Research Institute of Afghanistan	NCDM	National Council on Disaster Management
ARTF	Afghanistan Reconstruction Trust Fund	NDMC	National Drought Management Committee
CDC	Community Development Council	NEPA	National Environmental Protection Agency
DG	Director General	NPP	National Priority Programme
DRR	Disaster Risk Reduction	NRM	Natural Resources Management
DSIU	Drought Strategy Implementation Unit	NSIA	National Statistics and Information Authority
DTAC	Drought Technical Advisory Committee	PHDC	Perennial Horticulture Development Centre
EWS	Early Warning System	RCP	Representative Concentration Pathway (greenhouse gas concentration trajectory)
FAO	Food and Agriculture Organization of the United Nations	SCLWE	Supreme Council of Land, Water and Environment
FEWS NET	Famine Early Warning System Network	SDGs	Sustainable Development Goals
FLRC	Farmer Learning Resource Centre	SMDM	State Ministry for Disaster Management and Humanitarian Affairs
FSAC	Food Security and Agriculture Cluster	SNAP	Afghanistan Strategic National Action Plan for Disaster Risk Reduction
GDP	Gross Domestic Product	SPI	Standardized Precipitation Index
GoIRA	Government of the Islamic Republic of Afgha	SWC	Soil Water Conservation
GWP	Global Water Partnership	TSMS	Turkish State Meteorological Service
HCDM	High Commission on Disaster Management (former NCDM: National Commission for Emergency and Disaster Management)	UN Agencies	United Nations Agencies
ICARDA	International Centre for Agricultural Research in the Dry Areas	UNCCD	United Nations Convention to Combat Desertification
IDP	Internally Displaced Person	USD	United States Dollar
IFIs	International Financial Institutions	VFU	Veterinary Farm Unit
iMMAP	International not-for-profit organization providing Information Mapping and Management services to humanitarian and DRR organization	VRA	Vulnerability-Risk Assessment
IPC	Integrated (Food Security) Phase Classification	WASH	Water Sanitation and Hygiene
ISRO	Indian Space Research Organization	WB	The World Bank (Group)
Kuchi	Nomadic herding community in Afghanistan	WMO	World Meteorological Organization WRD Water Resources Department, MEW
MAIL	Ministry of Agriculture, Irrigation and Livestock		
MEW	Ministry of Energy and Water		

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H.E. Eng. Nasir Ahmad Durrani, Minister, MAIL for overall vision, leadership and guidance; H.E. Deputy Minister, ANDMA and officials from MAIL, MEW, MRRD, AMD, ANDMA, NSIA, and NEPA for providing timely and crucial contributions especially on the strategic priorities, results framework, operational plan, and the implementation arrangements of the strategy as well as tirelessly participating in the “write-shops” organized as part of the strategy formulation process. Inputs from NRM, Planning & Programme Coordination, MAIL; Afghanistan Meteorological Department; Regional Programme, MRRD; Director Risk Management Division, ANDMA and MEW were especially helpful in ensuring alignment of this drought risk management strategy with existing policy instruments of MAIL and other ministries.

The World Meteorological Organization (WMO) and the Global Water Partnership (GWP) for wholeheartedly participating in the strategy formulation process including the scoping mission and thorough review of the draft strategy based on global standards and practices on drought risk management.

National and international development partners - especially FEWS NET, Oxfam, AfghanAid, Agha Khan Agency for Habitat, ICARDA, iMMAP, UN Agencies, and EU - for participating in the strategy formulation process and helping determine the strategic priorities as well as key actions needed to address the risks of drought in the long term.

The formulation of this strategy benefited a lot from the Ministry of Finance and World Bank led consultative process on the ‘water scarcity, food insecurity and famine risks’ Framework. Discussions on the overlapping priorities of this ‘Framework’ and the drought risk management contributed to narrowing down the immediate and long-term action areas as well as broad basing this strategy.

The Food and Agriculture Organisation of the United Nations, including experts from the organisation headquarters, regional office for Asia-Pacific and Afghanistan office for bringing in sectoral, drought management and Afghanistan contextual experiences in the formulation of this strategy and its accompanying operational plan.

Rationale for strategy: Given the increasing severity, frequency and impacts of droughts in Afghanistan - also evident in the large scale adverse impacts of the 2018-drought - the Government of Islamic Republic of Afghanistan (GoIRA) decided to make a paradigm shift in its approach from the erstwhile management of drought as a disaster to proactively managing the risks of drought. Under the guidance of H.E. Dr. Mohammad Ashraf Ghani, President of Afghanistan; the Food and Agriculture Organization of the United Nations (FAO) was requested by H.E. Eng. Nasir Ahmad Durrani, Minister, MAIL to formulate a long-term (2019- 2030) strategy for drought risk management.

Main focus: Drought risk management includes actions to: (i) prevent creation of new risks and exacerbation of existing risks, (ii) mitigate and reduce existing risks, (iii) manage residual risks through preparedness, early actions and rapid response, and (iv) risk-informed recovery and integrating drought mitigation actions in sectoral annual work-planning and budgeting. This long-term drought risk management strategy thus focuses on all these aspects of drought management and not just drought preparedness and response management as was traditionally being done in Afghanistan.

This drought risk management strategy will act as a “strategic connector, gap filler and cross-sectoral coordinated implementation channel” - from drought risk management point of view - for the myriad set of sectoral policies, programmes and overarching strategic frameworks currently in Afghanistan. Further, this strategy has synergies not only with the Ministry of Finance and World Bank led ‘water scarcity, food insecurity and famine risks’ Framework initiative in Afghanistan but also the drought management and resilience building initiatives of several UN Agencies and national / international development partners working in Afghanistan.

Strategy emphasis: This strategy focuses on the two main sectors viz. agriculture and water that are directly impacted by drought and which at times also contribute to the risks of drought. Agriculture sector in this strategy encompasses the crop (dryland as well as irrigated), livestock, rangeland, forest, and soil sub-sectors while the water sector encompasses small, medium and major irrigation (main, secondary and tertiary canals, Karez rehabilitation and on/off-farm water management), watershed management, rainwater harvesting, small storage & conservation structures, groundwater recharge, dams, and river basins and sub-basins management.

Strategy vision and priorities: This strategy lays out a bold vision of “Drought disaster free Afghanistan” with the goal of “Strengthened resilience of communities, ecosystems and governance systems to drought”. Ten guiding principles along with the four strategic priorities viz.: 1) Strengthening drought risk governance; 2) Improving drought vulnerability and risk assessment capacities; 3) Strengthening Drought Early Warning, Early Action and Monitoring Systems; and 4) Increasing investments in drought risk mitigation and response; underpin the implementation of this drought risk management strategy. These four strategic priorities are based on the analysis of impact of past droughts and underlying causal drivers of drought risks as well as the current strategic context and direction in Afghanistan. Further, these four strategic priorities are also aligned and consistent with the strategic objectives / pillars, thrust areas and operational plans of various sectoral policy instruments in Afghanistan. Furthermore, these strategic priorities draw upon the three pillars of the High-Level Meeting on Drought Policies (in Geneva in 2013), which have been further developed by partners in the global ‘Integrated Drought Management Programme’ by the World Meteorological Organization and the Global Water Partnership and also adopted by UNCCD as well as the four priorities of the 2015 Sendai Framework for DRR, to which GoIRA is a signatory.

Approach: Using a “kaleidoscope approach”, this drought risk management strategy emphasizes actions that are multi- (i) sectoral (agriculture, water, livelihoods and disaster management), (ii) scalar (administrative units, river basins / sub-basins, agroecological zones, livelihood zones, watersheds, and rangelands), (iii) thematic (policy instruments and procedures, institutional arrangements, systems and capacities, risk management, research, monitoring-evaluation, and knowledge management), and (iv) temporal (short-term: 2019-21, medium-term: 2022-25 and long-term: 2026-30) in their orientation. Further, these actions are envisaged to also synergise with related efforts for management of other hazards (flood, avalanche, pest attacks, fires, and such) in Afghanistan using the multi-hazard perspective. These actions have been detailed out in an accompanying ‘operational plan’ that provides the actions to be taken along with the lead and supportive responsibilities, timing and duration, location / scale, cost estimates, and alignment with existing sectoral strategies / policies / action plans.

Implementation arrangements: The implementation arrangements of this strategy are designed to be dynamically responsive to the needs of multi-sec-

toral, scalar, thematic, and temporal actions which need to be undertaken as well as responding to droughts. The Supreme Council for Land, Water and Environment (SCLWE) will be the national steering committee of this drought risk management strategy and will provide the overall strategic direction, oversight, resource prioritization and alignment, ensuring convergence in sectoral planning and investments, assigning 'sectoral work packages' for different ministries and agencies, establishing monitoring-evaluation system, and periodically reviewing the implementation to feed into the next round of creation of 'sectoral work packages'. 'Sectoral work packages' are programmatic bundles of sector-specific key actions as indicated in this strategy and its accompanying operational plan. A 'Drought Strategy Implementation Unit' (DSIU) will be created in MAIL to lead and manage the implementation of the agriculture sector related actions of this drought risk management strategy. Similar such DSIUs will also be created within MEW and SMDM/ANDMA respectively. The specific directorate within these Ministries where these DSIUs will be situated in will be decided by the respective Ministries taking into consideration the respective organization structure and drought strategy actions to be done. This strategy recommends that a Director General (DG) level official should operationally head this DSIU with the support of 3-5 senior specialists / officials to be drawn from within sectoral ministries as well as national / international experts. Further, a Drought Strategy Coordination Unit (DSCU) comprising 3-5 senior officials will be created as the technical secretariat of the SCLWE for coordinating the inter-ministerial actions pertaining the implementation of the drought risk management strategy as well as operationally support the SCLWE in fulfilling its 'steering function' towards implementing this strategy. The Head of respective DSIUs will be part of this DSCU to ensure coordinated planning and implementation of the various inter-ministerial actions of this strategy. The Head of the DSIU in MAIL will act as the ex-officio secretary of this DSCU. Furthermore, the DSIU in MAIL will act as the Secretariat of this DSCU and this strategy recommends that the DSCU also has a senior official from H.E. The President's Office to guide and support the coordination of this strategy's programmatic implementation across Ministries.

Head of the respective DSIUs will act as the drought strategy implementation focal points in their respective ministries. A Senior Official within each Provincial Governor's Office will be designated as focal point for respective Provincial Governors' offices and will be designated by the respective Provincial Governors. These focal points will coordinate with DSIUs and

DSCU in designing, implementing, monitoring, evaluation, reporting, and fiscal management of the 'sectoral work packages' of their respective ministries as well as integrating these 'sectoral work packages' in their respective ministry's / provincial administration's annual work planning and budgeting processes. Further, these DSIUs will be supported by a 'Drought Technical Advisory Committee' (DTAC) comprising scientists, academicians from Kabul and other Provincial (proposed: Herat, Kandahar, Balkh, and Takhar) Universities, World Bank and other IFIs, UN Agencies, key donors, and national / international development partners and civil society organizations. Overall, all responsible ministries and departments, as mandated by applicable laws and regulations, will implement this strategy along with its operational plan, the 'sectoral work packages' and projects developed as part of the implementation of this strategy.

Resources: The implementation of this drought risk management strategy will require a resource envelope of USD 5 Billion over the course of next 10-11 years. It is to be noted here that these are not 'extra' funds required but rather the costs of embedding drought risk management actions into routine and annual sectoral budgeting and planning. These funds are to be both on and off budget and are to be allocated through the GoIRA annual budgeting process. A 'Drought Pool Fund' is proposed to be created within MoF wherein donor grants, private sector contributions, investments, and budgetary resources earmarked for drought risk management are pooled on a rolling basis. An initial allocation of USD 500 Million as seed capital for this Fund is proposed that is to be topped up periodically till it attains a 'critical mass'. This Fund will be managed along the lines of the ARTF and sound fund management procedures including fiduciary, financial, appraisal and sanctioning of 'work packages', allocations, audits, and reporting will be put in place for its management.

CHAPTER 1

BACKGROUND



1.1 Rationale for long-term drought risk management strategy

The 2018-drought directly affected more than two-thirds of Afghanistan (22 out of total 34 provinces) with around 10.5 million people being most severely affected (of the total 17 million in these 22 provinces). 13.5 million people were facing “Crisis” or worse levels of food insecurity in September 2018 and at least 300,000 people internally displaced due to drought. This was one of the most severe droughts in recent times in Afghanistan. Several strands of scientific analyses and experiential evidence from Afghanistan indicate the increasing frequency, scale, duration, and impacts of drought in the country; a trend that is set to intensify in the future according to all climate change scenarios for Afghanistan. These increasingly recurrent droughts not only have adverse impacts at household and community levels - in terms of food nutrition security, livelihood security, water, sanitation and health, and coping capacities - but also on ecosystems (especially on land and water resources) as well as at macro levels in terms of drought-induced displacements, conflicts over depleting / scarce natural resources and straining fiscal and policy space.

Efforts over the years to address these adverse impacts of drought have largely focussed on ‘management’ of drought event per se, wherein drought-impacted populace and (to certain extent) stress to ecosystems has been addressed through response and recovery actions. However, these efforts didn’t focus on systematically addressing the causal drivers of risks of drought and underlying vulnerabilities of the communities and ecosystems, which coupled with climate change effects and impacts of human / development actions, has left people and ecosystems highly exposed to drought. There is thus a growing realization amongst Government of the Islamic Republic of Afghanistan (GoIRA) and development partners that drought risks are becoming increasingly complex and deep-rooted are eroding development gains as well as worsening the already alarming levels of water and food insecurity in the country - a fact that was evident during the 2018-drought in Afghanistan. Further, a lot of financial and other resources get used for the much-needed humanitarian responses to droughts; however this strains the fiscal space and diverts resources from long-term risk prevention, mitigation and reduction work that, if done systematically, will ultimately reduce the impacts of drought and thereby the requirements of humanitarian responses.

Even though drought risks are cross-sectoral, there isn’t any institution of GoIRA that is mandated to work on the issue of drought in a cross-sectoral manner. The Supreme Council of Land, Water and Environment (SCLWE) is mandated to provide strategic direction to land, water and environment sectors and issues thereof as well as ensure coordination of concerned sectoral ministries. However, this has not yet translated into collective envisioning on systematically addressing the risks of droughts by either the respective ministries or the SCLWE. Further, the National Commission on Disaster Management (NCDM), including its technical secretariat of Afghanistan National Disaster Management Authority (ANDMA), is mandated to oversee management of all disasters in Afghanistan. This mandate, till date, has mostly been fulfilled through management of disasters in ex-post and reactive manner rather than ex-ante and proactive risk management manner. Drought management has been especially reactive wherein the focus has been mainly on humanitarian response. There is a lack of: (i) data / analysis of past droughts, (ii) hazard, vulnerability and exposure mapping of drought, (iii) formal definition and declaration process, (iv) long term programmes for drought mitigation and risk reduction, and (v) lack of clear mandates across pertinent sectoral ministries to address long term risks of drought in a collective coordinated manner in Afghanistan.

This has thus necessitated a long-term strategy that not only enhances ongoing drought management - through strengthened response and recovery actions - but also focuses on addressing the underlying risks and vulnerabilities to drought of communities and ecosystems. Given the complexities of the causal drivers of drought risks and its interactions with development deficits, climate change and conflicts, a long-term (at least 10 years) perspective is needed for effective drought risk management. It is to be noted here that drought risk management includes: (i) prevention of new and exacerbation of existing risks, (ii) mitigation and reduction of existing risks, (iii) management of residual risks through preparedness, early actions and rapid response, and (iv) risk-informed recovery and integrating drought mitigation actions in sectoral annual work-planning and budgeting. This long-term drought risk management strategy thus focuses on all these aspects of drought management and not just drought preparedness and response management.

1.2 Strategy development process

As one of the response actions to the 2018-drought in Afghanistan, GoIRA through the Ministry of Agriculture, Irrigation and Livestock (MAIL) requested the Food and Agriculture Organization of the United Nations (FAO) to support the development of GoIRA's long-term (2019-30) drought risk management strategy in December 2018. Responding to this request, FAO provided technical support to MAIL in formulating this strategy. An iterative process comprising a mix of scientific analyses coupled with multiple rounds of consultations - bilateral meetings, workshops, group discussions, and written feedback loops - with all

pertinent stakeholders viz. officials from drought-relevant ministries and agencies (i.e. MAIL, MEW, MRRD, MoUD, MoMP, MoLSA, AMD, SMDM/ANDMA, NEPA, NSIA, amongst others), development partners (WB, UN Agencies, international and national NGOs, amongst others), technical agencies (FEWS NET, iMMAP, ICARDA, amongst others), academia and drought-affected community representatives was undertaken over the course of January to June 2019, which has resulted in this strategy. The following figure 1 depicts the strategy formulation process:

Purpose and intended users of this document

The purpose of this strategy is to guide planning, designing, implementation, and review of actions for drought risk management in Afghanistan over the course of 2019-2030 as well as provide a framework for allocating resources for these actions.

This strategy focuses on the two main sectors viz. agriculture and water that are directly impacted by drought and which at times also contribute to the risks of drought. Agriculture sector in this strategy encompasses the crop (dryland as well as irrigated), livestock, rangeland, forest, and soil sub-sectors while the water sector encompasses small, medium and major irrigation (main, secondary and tertiary canals, Karez rehabilitation and on/off-farm water management), watershed management, rainwater harvesting, small storage & conservation structures, groundwater recharge, dams, and river basins and sub-basins management.

The intended users of this document are the President's Office, High Council on Disaster Management, National Drought Management Committee, Supreme Council for Land Water and Environment, MAIL, MEW, MRRD, ANDMA, and all the Ministries and agencies related to and mandated with drought risk management actions as well as development partners - both international and national - working on drought management in Afghanistan.



Drought-affected Herder in Balkh, Afghanistan.

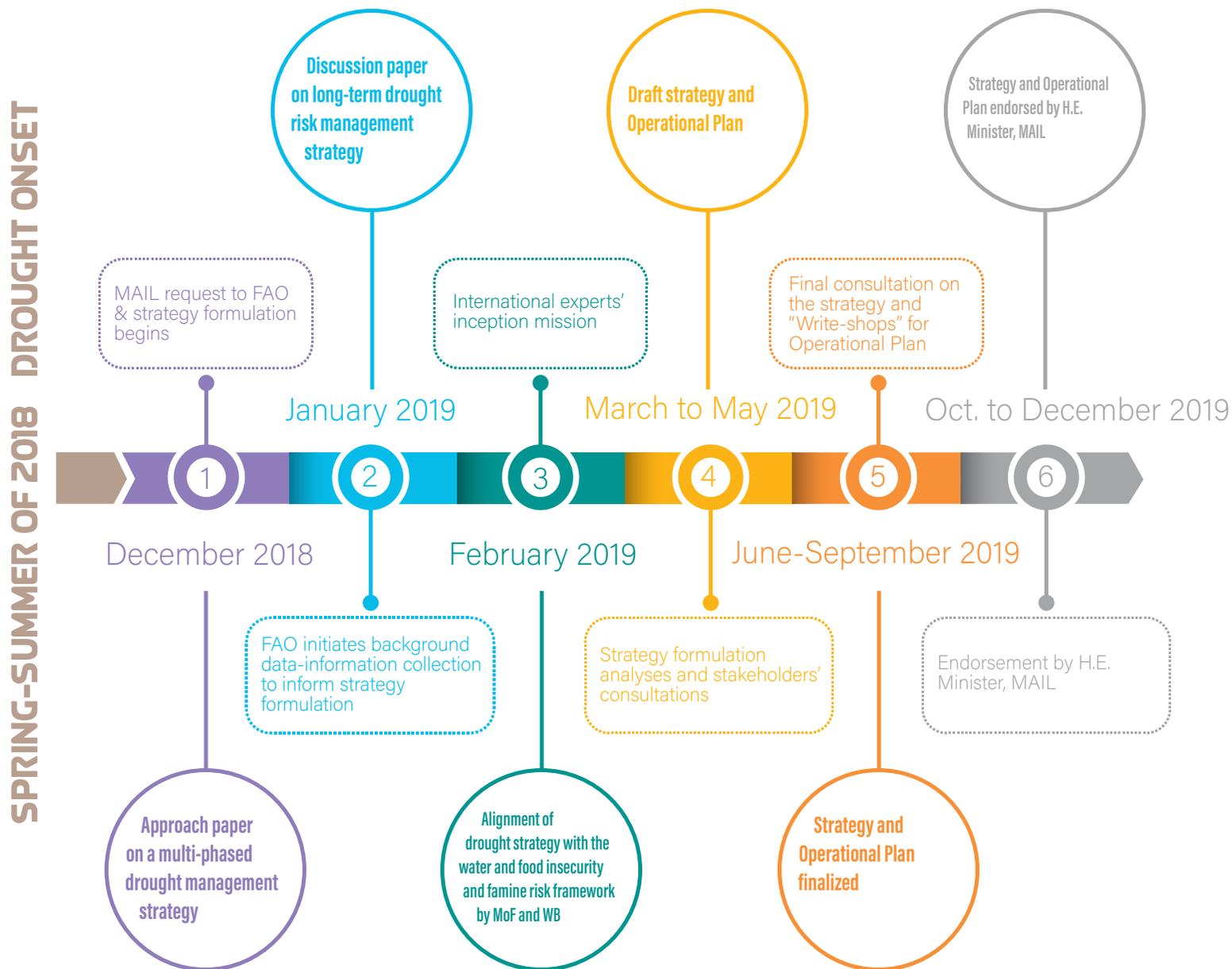


Figure 1: Strategy Formulation Process

CHAPTER 2

THE STRATEGIC CONTEXT



2.1 Characterizing Drought in Afghanistan

Drought is a slow-onset hazard and can be characterized in terms of its severity, location, duration, and timing.¹ Droughts arise from a range of hydrometeorological processes that limit precipitation and/or surface water or groundwater availability, creating conditions that are significantly drier than normal or can otherwise limiting moisture availability to a potentially damaging extent.ⁱ Drought is uniquely characterized by its ‘movement’ across landscapes and ‘timescapes’ (i.e. time horizons including months, seasons and years) - both in its manifestation and layers of impact - and is thus often referred to as a ‘creeping disaster’ⁱⁱ. This movement means that drought extends across different elements of an ecosystem and human settlements as well as accumulates and aggregates the adverse impacts along its way.

Occurrence and Spread: In Afghanistan context, a severe drought generally means low winter rain- fall in two successive years.ⁱⁱⁱ Droughts are a recurring phenomenon with almost all years since 1997 being a drought year in some or the other part of the country and 2-3 droughts every 10 years since the past 50 years. In recent years, there has been a marked tendency for this drought cycle to occur more frequently. As depicted in the adjacent figure 2, 18 out of 34 provinces are chronically drought-prone and have at least one district where more than 60,000 people are exposed to high drought frequency.^{iv} The weather records from the region show that low winter precipitation in two successive years occurs at least once every 10-15 years.

Impact²: Despite decades of experiencing and coping with drought, data and analysis regarding drought impact in Afghanistan continues to be scarce. Resultantly, the systematic collection, analysis and use of this data is a key focus area in this strategy and is discussed in the next chapter. Meanwhile, presented below is a snapshot of impacts of drought in Afghanistan over the past 25 years based on available empirical and experiential³ evidence of past droughts in the country:

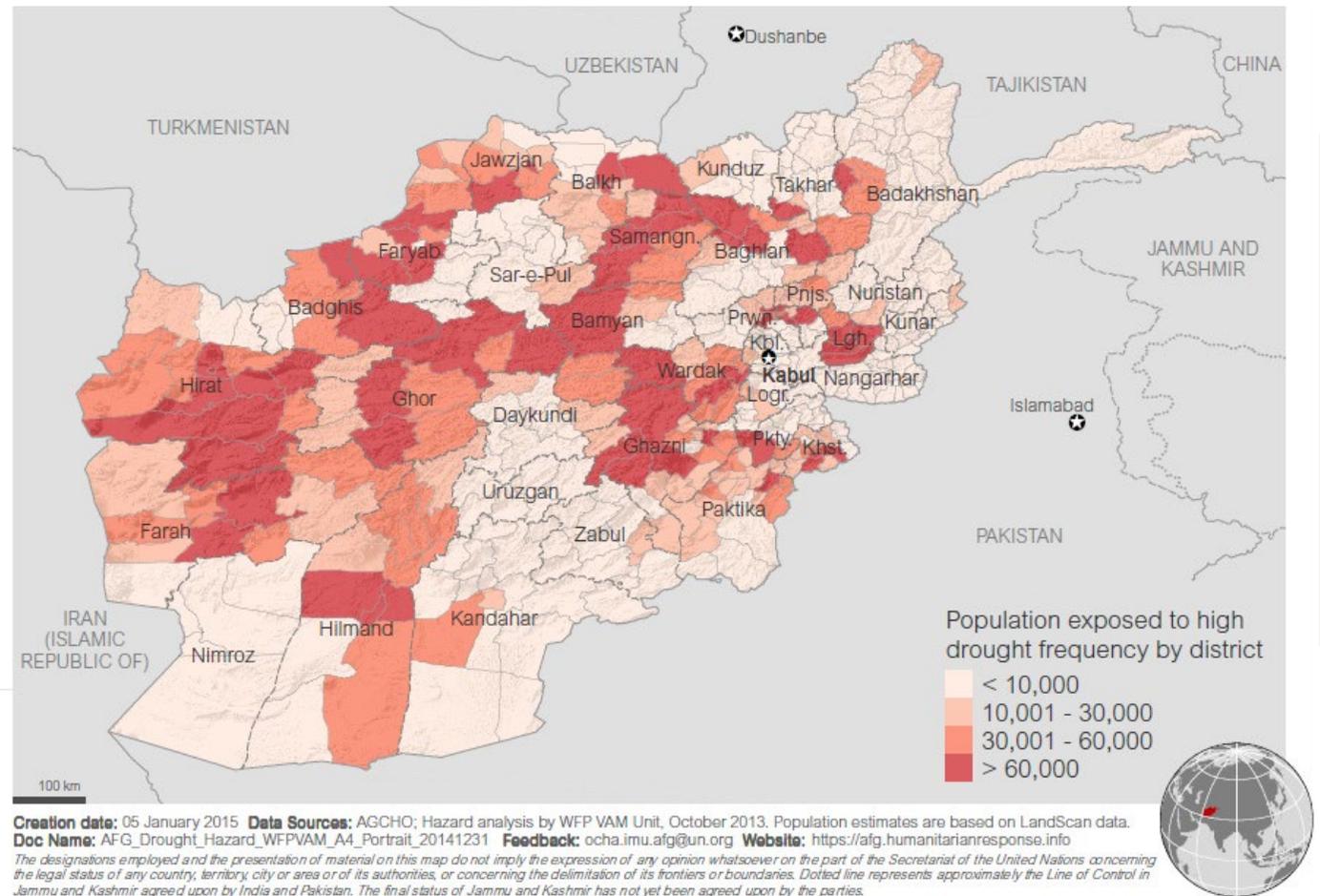


Figure 2: Population Exposed to High Drought Frequency

¹ This section is informed by a background paper on characterizing droughts in Afghanistan, which is provided as Annex 2.

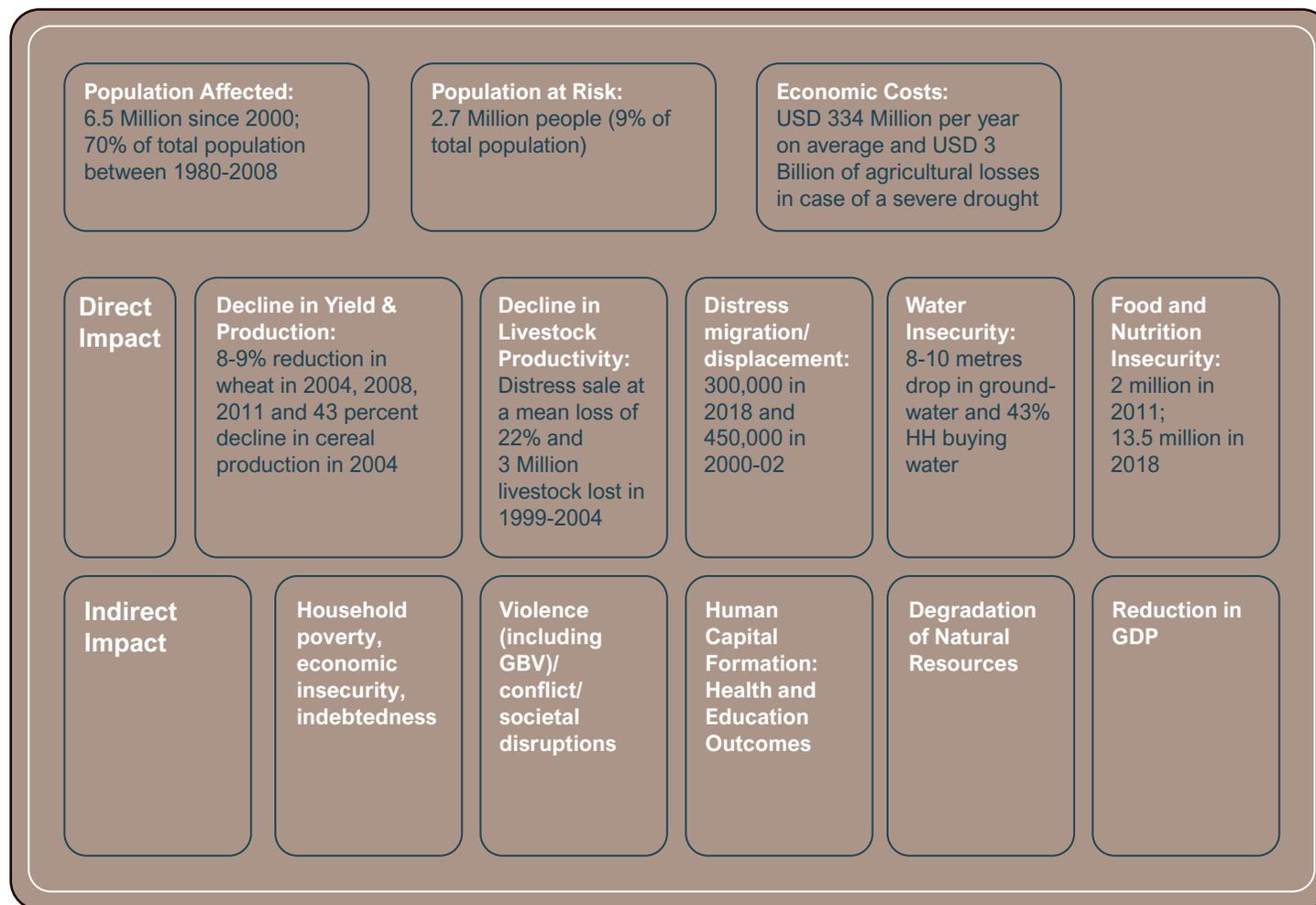
² See Annex 3, ‘Drought Impact in Afghanistan’ for details and references.

³ ‘experiential’ evidence comprising the collective experiences of many officials at national to local levels across various ministries and professionals working on emergency and drought management programming in various UN Agencies and development partners in Afghanistan; all of whom also draw upon their previous interactions with drought affected communities, local organizations’ – ‘grey’ – assessments / reports / studies and anecdotal evidence gathered over the past couple of decades in Afghanistan.

Figure 3: Snapshot of Impacts of Droughts in Afghanistan

To wit, in Afghanistan - as observed over the past 25 years - direct adverse impacts of drought have been in agriculture, natural resource, water, livelihoods, health, sanitation, protection, and the wider development sectors. Droughts in Afghanistan have caused: (1) loss of crop production and reduction in yield; (2) reduction in livestock productivity, disease/infections and at times death; (3) severe worsening of food and nutrition insecurity; (4) adoption of adverse coping strategies including forced and distress sale of productive assets and increased child labour; (5) distress migration / displacement thereby increasing pressures on scarce resources as well as sub-optimal living conditions at the site of displacement; (6) unsustainable use of water and other natural resources; (7) degradation of natural resources leading further to loss of productive soil and eventually desertification; (8) accentuates gender based exploitation including early and forced marriages of girls; (9) potentially irreversible damages in human capital formation due to dropping out from schools; (10) adoption of autonomous maladaptation practices by farmers and herders; and (11) reduction in GDP.

Markedly, droughts in Afghanistan have resulted in significant indirect adverse impacts as well like: (1) worsening dietary diversity and food-nutrition crisis hindering human capital formation and inter-generational health effects; (2) aggravating water shortages, quality and unsustainable usages; (3) forced permanent out migration from drought-prone areas to urban centres, which



brings its own set of developmental issues; (4) systemic non-prioritization of drought-prone areas in developmental resources' allocation / prioritization; (5) accentuation of social hierarchies and gender stereotypes and gender-based exploitation; and (6) setting off / exacerbating local conflicts over scarce natural resources and land-use. Further analysis of impacts of drought in Afghanistan suggests that the nature of these impacts is:

- **Multi-sectoral:** the cascading impact can be seen to extend from water

to agriculture to rural livelihoods to financial to markets to food and nutrition to health to human capital formation to displacements related land-use change and local conflicts to overall development and local / provincial / national economy. For example, sectoral impacts in Afghanistan have been experienced from water shortages to reduced crop production and yield to adverse livestock health to worsened food nutrition security to increased school dropouts to early marriage of girls to displacements from rural areas to urban fringes to changing land use patterns to drop in wage rates to fall in GDP.

- **Multi-scalar:** the cascading impact extends across the micro i.e. across household and local ecosystems to meso i.e. across local markets, watersheds, large ecosystems, livelihood zones, rural-urban, and from districts to provinces and to macro i.e. across river-basins, agroecological zones, economy, fiscal, demographic scales, and from provinces to nationally. This scalar cascading is not just across administrative units / levels but also across the component units of ecosystems for example, from one river sub-basin to other sub-basins and the entire river basin or across the sub-zones within an agroecological zone. For example, scalar impacts in Afghanistan have been experienced to extend outwards from the drought-affected district to adjacent districts / provinces through depressed labour wage rates, drought-induced displacements, changing land-use and increased food prices as well as from dryland farming systems to irrigated farming systems to overuse of rangelands to Kuchi herders denied access to traditional seasonal migration routes and summer pastures to skewed hydro- logical balances across river sub-basins to nationally through fall in GDP.
- **Multi-temporal:** the adverse impacts extend and linger over months, seasons and years. Temporal aspect of drought in Afghanistan has been seen wherein adverse impacts have cascaded over consecutive agricultural seasons with fall in crop production, yield, livestock produce, and labour wage rates as well as increase in food and fodder/feed prices and fall in livestock price in subsequent year(s). This temporality is often a key driver for reduced agricultural yield, production and increased indebtedness as well as the continued stay of displaced households in urban fringes / temporary camps and settlements in Afghanistan.

Climate change and drought: Climate change scenarios for Afghanistan un-

equivocally suggest that under all climate change scenarios ranging from the 'optimistic' (RCP 2.6) to the 'pessimistic' (RCP 8.5), Afghanistan will experience increasing temperatures^v, reducing and erratic precipitation^{vi}, reducing soil moisture^{vii}, higher melting of snowpack / glaciers^{viii}, severe water scarcity^{ix}, and more hot to very hot days^x. Climate projections suggest that the main negative impact of climate change in Afghanistan will be increased drought risk - with increased flood risk being of secondary concern. Annual droughts in many parts of the country will likely become the norm by 2030, rather than being a temporary or cyclical event. The forthcoming FAO study^{xi} on analysis of climate change on agroecological zones indicates that the only positive development could potentially be the increased number of crop cultivation / growing days in most parts of north-eastern and central Afghanistan due to increased temperature and goes on to further suggest that:

“While moisture limitations will continue (and somewhat worsen) into the future and result in some expansion of the no cropping zone in the south-western region, minor improvements (from no cropping to single cropping or from single cropping to limited double cropping) may materialize due to global warming in the north-eastern, eastern and central regions. When moisture limitations can be overcome with irrigation, the prevailing temperature regime allows for triple cropping in south-western Afghanistan and in pockets of eastern and south-eastern Afghanistan. In most of the central and part of north-eastern region only one sequential or no crop is possible due to limited heat provision. In the north-western, western and south-eastern region dominantly double cropping can be practiced where water is available. With climate change and if water can be supplied, the irrigated multiple cropping potential is expected to increase in all regions due to warming, very distinctly so in the north-eastern, north-western, central and eastern regions.”

Exposure of people, livestock, productive assets, sectors, and habitations to drought is also determined by the underlying vulnerabilities of degraded water, land, soil, and natural resources in addition to changing climate. For farmers, climate change results in increased soil evaporation, reduced river flow during most of the season, and less frequent rains. Crop failure levels increase due to water shortages resulting in an increase in uncultivated land and in turn increasing soil erosion and land degradation.

2.2 Framing the issue of drought in Afghanistan

Analysis of causal drivers of drought risks

While an analysis of causal factors is an essential precondition to envisioning durable solutions, issue-framing takes a renewed relevance in the case of drought for which there can “neither be a single definition of drought nor one type of drought that is applicable to all contexts”^{xii}. Typology of drought is varied and based on temporality (permanent, seasonal, contingent, and invisible drought), trigger-characteristics (meteorological, hydrological and agricultural drought), statistical parameters (indices focusing on precipitation, surface and sub-surface water, soil moisture, vegetation, crop yield, and such), and impact (socio-economic, ecological and environmental drought). The below box 1 explains the four types of drought viz. meteorological, hydrological, agricultural, and socio-economic that have occurred in Afghanistan.

Further, in any context drought can be either one of these four types or a combination of couple of these four types or in extreme instances all four types at the same time. Recent analyses also point to a fifth type of drought viz. ‘flash drought’ where the conditions for any one or two types of droughts rapidly develop resulting in drought situation (for e.g. gap of more than one month in precipitation in rainfed agriculture system can result in a flash agricultural drought while there may not be a meteorological drought based on the aggregate precipitation of the entire season).

Furthermore, from a drought risk management perspective it is also important to focus on the variables characterizing drought events, i.e. frequency, severity, intensity, duration, onset, cessation, end point, and area affected. The following table adapted from Vogt JV et al. paper^{xiii}, ‘Drought Risk Assessment: A conceptual Framework’ - provides a description of these characteristics of drought:

Drought Types

1. **Meteorological Drought:** deviation from average rainfall/snowfall and is calculated as the degree of dryness and the duration of the dry period because of below average precipitation.
2. **Hydrological Drought:** deviation from average level of surface and ground water and is calculated as the fall in the water level below an established statistical average water level in rivers or water reserves in lakes, reservoirs and aquifers.
3. **Agricultural Drought:** deviation in vegetation health and crop produce and is calculated by the amount of moisture in the soil and state of vegetation and yield.
4. **Socio-Economic Drought:** is induced by a combination of meteorological, agricultural and hydrological drought. Socio-economic drought is calculated as the changes in economic levels (assets, income flows, poverty levels) and social factors (out-migration, adverse coping strategies).

Box 1: Types of Drought

Description of drought characteristics

Characteristic	Description
Frequency	Number of drought events per defined time interval
Severity (Magnitude)	Related to: (i) water deficit, which is computed as the sum of the differences, in absolute values, between the drought indicator (DI) values and the threshold used to define the level of dryness; (ii) reduction in agricultural production / yield, which is computed as the deviation in vegetation health against the normal or total production against an average production
Intensity	Severity divided by duration of the event
Duration	Number of days, months or time steps of the event
Onset	First day, month or time step for which the indicator is below a given threshold
Cessation	Meteorological indices have returned to normal, soil moisture is restoring, pasture growth re-establishes, forest growth re-establishes, reservoirs and lakes refill
End point	Meteorological indices have returned to normal, soil moisture is restoring, pasture growth re-establishes, forest growth re-establishes, reservoirs and lakes refill
Area affected	Area or percentage of a region (or country) with values of the drought indicator below a certain threshold

Table 1: Drought Characteristics

The causal factors and drivers of drought risks in Afghanistan have been analysed below in the form of immediate, underlying and structural causal factors of drought. The below figure (developed during stakeholder consultations) illustrates the levels of causal factors:

DROUGHT

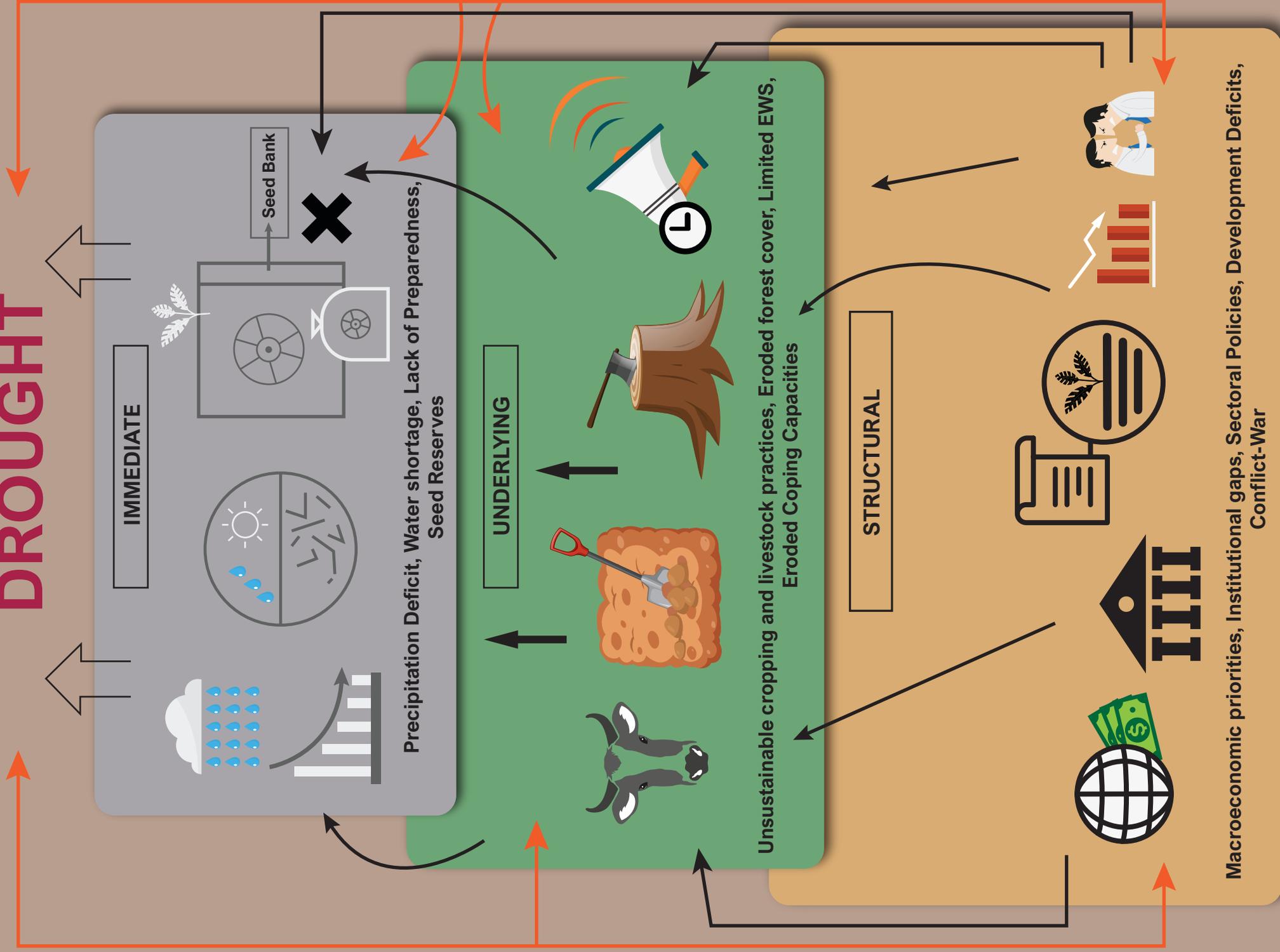


Figure 4: Causal Factors of Drought in Afghanistan

Immediate causal factors: These are a mix of natural and human factors that act as the “tipping factors” triggering drought. These immediate causal factors are: (i) deficiency and/or failure of winter and spring precipitation, snowfall and snowpack formation and high summer temperatures; (ii) shortage, scarcity, and unavailability of both surface and ground water as well as deficient soil moisture; (iii) reduced crop and livestock production and/or yield; (iv) forecasts and early warnings that are inadequate in terms of its timing, accuracy and contents; (v) lack of sufficient preparatory measures at household, community and government levels; (vi) delayed response actions to minimise the early effects; and (vii) lack of enough reserves of water, food, fodder, and other essentials to tackle the natural “tipping factors”.

Underlying causal factors: These are a mix of mainly human and some natural factors that act as “catalysts” in amplifying the effects of the immediate causal factors as well as heightening the exposure and sensitivity of humans and ecosystems to drought hazard. These underlying causal factors are: (i) unsustainable cultivation and livestock rearing practices that do not take into account the micro as well as meso/macro hydrological balance; (ii) falling domestic wheat and cereal production; (iii) development and governance deficits; (iv) eroded endogenous capacities of households, communities and ecosystems - especially eroded rangelands and depleted forest cover in Afghanistan; (v) regular loss of topsoil and degraded natural resources due to unsustainable practices and effects of droughts and floods; (vi) desertification at a rapid pace in the southern and south-eastern parts; (vi) eroded coping capacities of households and communities as well as ecosystems in drought-prone areas; (vii) livelihood insecurity and limited alternatives for livelihoods in rural areas creating undue pressures on agriculture and ecosystems; (viii) lack of systematic data and analyses on impacts of past droughts and analyses of changing characteristics and risk profile of drought in recent times in Afghanistan; (ix) limited and non-harmonized investments in strengthening systems for forecasting, early warning, communication, and monitoring of drought; (x) increasing exposure to drought due to climate change and effects of other hazards (especially floods, fires and avalanches); and (xi) high number of returnees and IDPs causing further stress on natural resources. These factors interact with underlying vulnerabilities at household level in terms of eroded coping capacities due to exposure to frequent shocks and high levels of food nutrition insecurity coupled with poor health and water-sanitation conditions, and depleted income levels and assets.

Structural causal factors: These are primarily human factors that have created conditions “suitable” for the drought hazard “tipping factors” to turn rapidly into a drought disaster by animating (and at times also creating) the underlying factors. These structural causal factors are: (i) ongoing four decades of conflict and instability; (ii) macro-economic and developmental priorities prioritizing urban areas over rural and cultivation of water-intensive crops as well as non-judicious management of water; (iii) risk-blind (or uninformed and at times aggravating) development; (iv) lack of pertinent institutions for drought risk management and related research and extension as well as fractured institutional arrangements for the same (unclear mandates and procedures on drought declaration, no official drought definition, not much coordination in mitigation planning and implementing); (v) drought being perceived as a ‘disaster event to be managed’ rather than addressing the risks and vulnerabilities of it leading to limited policy, strategic prioritization and resource allocation in addressing drought risks; (vi) lack of decentralized decision making on early season drought declaration and risk management; (vi) limited / lack of integrated and/or convergent planning taking into consideration river basins, aquifers, natural resources, agroecological zones, and risks induced by changing climate and other factors across the eight broad agroecological zones and 29 varied livelihood zones with predominant agropastoral livelihoods ; (vii); gender stereo- types, coupled with social and age hierarchies, that not only hinder access and control over resources but also participation in decision making by women; and (viii) societal and cultural acceptance of drought being part of life.

2.3 Current policy, institutional and programmatic context on drought in Afghanistan

The policy and institutional landscape of Afghanistan carries an imprint of the long history of dealing with multiple drought events. There have been multiple initiatives by GoIRA and development partners at policy, institutional and drought response, recovery and mitigation levels, which is a remarkable feat in the context of chronic political instability and the ensuing governance deficits. A snapshot of

current state of play regarding the policy, institutional and programmatic context pertaining drought in Afghanistan is provided below:

Policy instruments and strategic directions: There exist three kinds of policy instruments that govern drought management actions in Afghanistan. These include overarching development policies and strategic frameworks of GoIRA; sector-specific instruments like legislations, frameworks, strategies, road- maps, and action plans; and specific drought management instruments. That drought finds a mention in overarching national policies like Afghanistan National Peace and Development Framework (ANPDF) of 2018; Afghanistan National Development Strategy (ANDS) of 2009 and its related National Priority Programmes (NPP) of 2011/17 indicates the continued significance of this issue in the country's growth narrative. However, efforts at developing a full-fledged policy for drought management haven't fared as well as desired. For example, a Drought Management Policy was drafted in 2008 while the National Drought Management Strategy and Policy was formulated in 2010/11 but both are yet to be officially endorsed/adopted and resulted in mostly 'reactive' / ex-post management of droughts through humanitarian response. There exist multiple sector-specific policy instruments like the Disaster Management, Dryland Agriculture, Irrigation, Water Resource Management, NRM, Rangeland, Food Security and Nutrition, and Meteorology sectors that address relevant aspects of drought from their respective sectoral perspectives. While these are useful sources of direction for actions on drought management,

- even though the Dry Land Farming Policy and its strategy as well as the Climate-resilient Water Strategy have many elements pertaining drought; yet there does not exist one document that brings together these perspectives under a coherent narrative;
- none of the documents provide a definition for drought and the resultant actions for managing drought risks nor provide clear strategic direction in terms of why and how to deal with drought risks,
- they unintentionally create fractured institutional arrangements with varying mandates and priorities from the perspective of drought risk management and without adequate systems and mechanisms in place for: (a) analysing the impacts of past droughts; (b) assessing vulnerabilities and risks to as well as impacts of future droughts; (c) optimal long-term/phase/scale

predictions, forecasting, early warning, monitoring, and early actions including financing and responsive social protection for drought risk management; and (d) harmonizing these three strands of analyses to inform and input into policy, long-term programming on and financing of drought risk management;

- they don't provide a clear conceptual and operational framework on: (a) managing drought risks and (b) under-standing of the evolving / changing drought risks in Afghanistan because of several endogenous and exogenous factors;
- most of the documents adopt a 'drought management' approach with clear directives on addressing the drought event per se, however, a 'drought risk management' is yet to be adopted.

The below box 2 clarifies the difference between ‘drought management vs. drought risk management’:

Box 2: Drought Management vs. Drought Risk Management

Drought management normally focuses on ‘managing’ the drought event, as triggered by water scarcity, through a set of sectoral humanitarian response and recovery actions focusing on ensuring drought-affected people and livestock get adequate water, food, fodder/feed, and sanitation-health services as well as income support through cash transfers and cash for work programmes. The traditional and predominant narrative of drought management is to approach it as an issue of water deficiency / scarcity, induced by deficit precipitation, and resulting in diminished water availability and agricultural production. This translates into drought response actions focusing on making available water (irrigation command and control, dyke-canal-embankments, groundwater extraction, and provision by tankers amongst others), food (distribution, camps / kitchens and such), agricultural inputs (seeds, implements and such), fodder and vet care, and cash / food-for-work programmes while recovery and mitigation measures focus on strengthening irrigation management, better water ‘control’, watershed management, enhancing agricultural production / productivity, and natural resource management. Since 2000’s, drought monitoring and its linkage with weather forecasting has gained attention - marking a shift in emphasis from response to preparedness. However, the essence of the drought management approach has remained that of ‘managing’ the drought event and this narrative emphasizes actions to manage the symptoms and triggers rather than the underlying and root causal factors of drought.

Drought risk management rests on the concept of ‘risk’, whose complex temporal evolution leads to the drought ‘event’. Understanding this evolution – including the interaction of causal factors and accumulation of risk over time – is integral to the drought risk management approach. Emphasis of drought risk management is to be proactive and focusing on actions to address the causal drivers which turn the drought hazard into a disaster. This approach focuses on using accurate forecasting and early warnings of drought to undertake a set of preparedness, early actions and rapid response as well as using drought vulnerability-risk assessments to inform sectoral risk mitigation and reduction actions. Further, it also accounts for preventing the creation of new risks or exacerbation of existing risks of drought through sectoral and routine development planning. Such an approach puts in place appropriate enabling policy instruments and institutional arrangements to ensure strategic focus, investments and annual work planning continue to systematically address the risks and underlying vulnerabilities of drought on a regular basis. Finally, drought risk management ensures reduced ‘costs’ of drought, savings in humanitarian response and economic-social-environmental co-benefits.

Leadership and Institutional Arrangements: As in other countries, traditionally, multiple ministries have addressed drought within GoIRA according to their specific mandates. There have been unifying efforts - through the Law on Disaster Response, Management and Preparedness, Water Law, Drought Management Strategy, SNAP, and ANDMA’s Strategic Framework - in the

form of institutional arrangements like: (i) **High Commission on Disaster Management** (HCDM, former NCDM: National Commission for Emergency and Disaster Management) that was constituted in 2013 as the highest body for strategic and policy direction for overall disaster management; (ii) **National Drought Management Committee** (NDMC) was constituted in 2009 as the

highest body for strategic and policy direction for drought management; (iii) **Drought Technical Working Group** was constituted in 2007-08 under the Supreme Council of Land Water and Environment (SCLWE)⁴, which is mandated by the Water Law as the highest body for strategic and policy direction for managing water resources in Afghanistan; (iv) **Integrated Water Resources Management (IWRM)** group was constituted in 2007 to lead drought management work; and (v) **ASMDM/ANDMA** is mandated with developing drought preparedness and emergency response plans. These plans, HCDM/NDMC and the technical working group have till date primarily focused on drought preparedness and response and have yet to collectively plan and coordinate actions to address the underlying causal factors of drought in Afghanistan. Further, as with the policy focus, the functioning of HCDM/NDMC and the technical working group is more drought disaster management centric rather than on a regular long-term risk management perspective as evident from the fact that there is no single action plan to address drought risks in a coordinated intersectoral manner.

Drought risk governance: The diversity and number of policy instruments and institutions working on drought management in Afghanistan indicates the continued significance of this issue however there isn't any officially adopted drought definition, classification, thresholds, and indicators for 'official declaration' of drought in Afghanistan. This results in delayed 'official declaration' and ensuing response-recovery actions as well as creates a strategic perspectival gap wherein preparedness and planning of long-term drought mitigation measures are not prioritized. Further, even though the NCDM is responsible for all disasters' declaration in Afghanistan, there exists an ambiguity in who within GoIRA - whether SMDM/ANDMA, MAIL, MEW, MRRD, or AMD - is mandated to officially declare drought disaster. This is evident from lack of publicly available official records of any such declaration in the past. Furthermore, the focus on individual drought events (disasters) has meant that drought risk governance is not geared to address the 'creeping' (across sectors, administrative units, river basins and agroecological zones, and seasons) nature of drought. This has resulted in an "emergency management approach" that focuses on humanitarian response to enable food security, water availability, safeguarding agricultural livelihoods, health, and WASH. Recently the management of water, agriculture and land resources has received more emphasis yet the cascading impacts of drought on human capital, national economy and natural resources remain unaddressed.

Drought Forecasting, Early Warning and Monitoring Systems: Weather stations including rain and snow stations, and hydraulic stream gauge stations have been built, repaired and updated to a large extent by mandated agencies. AMD, MEW and MAIL are working to re-establish the meteorological, hydrological and hydraulic data networks, which were destroyed during the four decades of conflict. AMD has recently initiated analysis of drought based on available Standardized Precipitation Index (SPI) data for Afghanistan while a roadmap for strengthening hydro-met services in Afghanistan has been developed in 2018 through WMO and World Bank support. NSIA (National Statistics and Information Authority) has been mandated in 2018 through a Presidential Decree to constitute a National Early Warning Committee. Efforts are currently on way to develop a National Flood (hydrological shocks) Forecasting Centre in WRD, MEW with support from World Bank and FAO. Further, combined efforts of the Famine Early Warning Systems Network (FEWS NET), The Agromet Project, non-governmental agencies like iMMAP provides a simplified yet effective drought forecasting system. However, these analytics hardly inform drought risk prevention, mitigation, reduction, and sectoral planning in a systematic way nor is it communicated to drought-prone communities on a real-time and regular basis.

Drought Management Programmes: MAIL, MEW and MRRD have implemented several programmes for drought management from agricultural and water/irrigation management point of view. A comprehensive list of the same is available in Annex 3. All these various programmes, projects and schemes are individually addressing the various risks of drought across parts of Afghanistan, which is useful, however these have been implemented in varying time periods in varying provinces / districts and have not been underpinned by broader landscape management approach. This has resulted in the hydrological balance and landcover / use not being taken into consideration for effective land-water demand-supply management thus resulting in fragmented changes in addressing the drought risks.

⁴ In Afghanistan, water management and administration are the responsibility of the Supreme Council of Land, Water and Environment (SCLWE), regional river basin authorities, departments within MEW, MAIL and MRRD, and NEPA. Eight government ministries are involved in various aspects of water management in SCLWE, but MEW and MAIL have a key role in the management and development of large water resources, irrigation structures - both on and off farm - and the establishment of water usage norms, respectively while MAIL also has the mandate on agriculture, NRM and land-soil management work.

Conclusion

The impacts of drought in Afghanistan extend across sectors, scales and timescales. While this multiplicity is mirrored in the existing governance mechanisms for drought – its ‘movement’ across these scales is not yet reflected in the functioning of these governance mechanisms. Further, there is need for unifying mechanisms that enable collective envisioning and concerted actions to address the causal factors of drought risks. For this to happen, robust analysis is needed of previous droughts in terms of its causal factors along with an analysis of the prospective risks of future droughts as well as that of the changing characteristics of drought in terms of its timing, duration, frequency, intensity, location, and impacts. The existing sectoral policies, strategies and programmes provide a good starting point for pitching the drought risk mitigation sectoral actions and bringing in a drought risk management perspective.

Building upon this strong foundation and with an eye to meeting the increasing drought risks, Afghanistan is well-poised to make this shift from drought management to drought risk management. It is thus vital that this drought risk management strategy focuses on strengthening the policies, institutional architecture, and decision making processes on: (i) mechanisms to evolve one / commonly agreed national **definition of drought**; (ii) a scientific and institutionally robust **drought declaration process** at national and sub-national levels; (iii) innovative institutional arrangements for multi sectoral, scalar and temporal integrated drought risk management; (iv) decision making at all levels for convergent sectoral investments towards reducing existing drought risks, preventing the prospective (future/emerging) risks and managing residual risks in case of a drought event; (v) **harmonizing the agro-hydro-met data management** to inform drought forecasting, early warning and monitoring; and (vi) strengthening the understanding on drought through vulnerability-risk analyses as well as learning processes to regularly analyse various risk management initiatives and the emerging drought risks to inform planning and investment decisions.



Drought-induced IDPs in Badghis, Afghanistan

CHAPTER 3

ELEMENTS OF THE DROUGHT RISK MANAGEMENT STRATEGY



3.1 Conceptual framework

The conceptual framework underpinning this drought risk management strategy is depicted in the following visual:

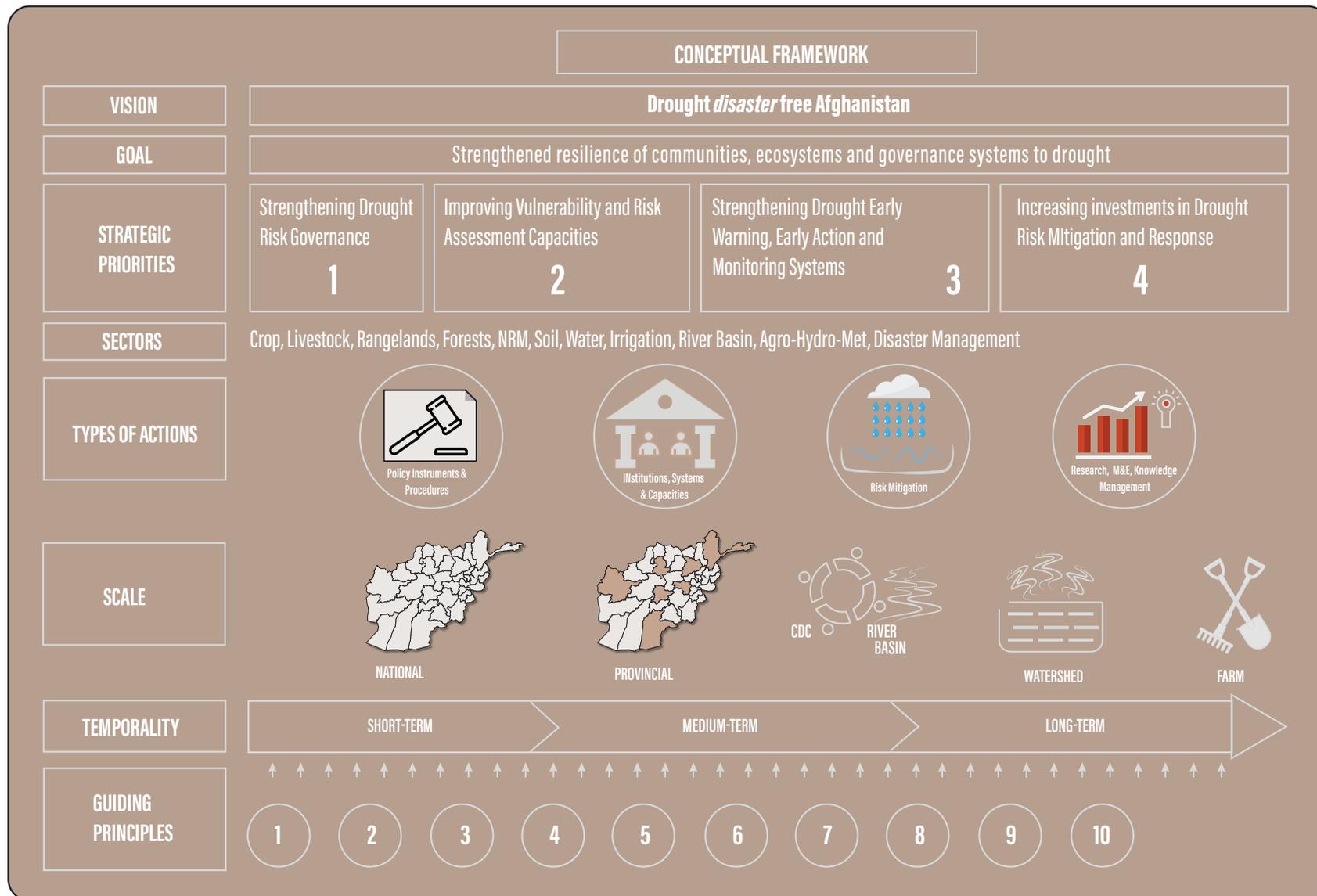


Figure 5: Drought Risk Management Conceptual Framework

The constituent elements of this conceptual framework are described below.

Vision: This strategy envisions “a drought *disaster* free Afghanistan”.

Goal: Strengthened resilience of communities, ecosystems and governance systems to drought.

Even though many scientists, practitioners, political leaders, experts, and people living in drought-prone areas may say that eradicating drought is impossible, yet this strategy envisions a drought disaster free Afghanistan⁵. *Why? Because, ensuring that a drought hazard does not become a disaster needs a fantastic dream, an impossible vision, an inspiring clear goal, and a clarion direction of action. Because, drought-ravaged communities and ecosystems of Afghanistan need a clear and simple commitment from the government and all stakeholders that drought risks will be systematically and comprehensively addressed within a specific timeframe on a priority basis. Because, this is an integral part of the ‘social contract’⁶ between the GoIRA and the Afghan citizens. Because, various stakeholders – especially government and development partners – need a clear goal to strategize and plan, mobilize resources, and prioritise actions for making Afghanistan drought disaster free. Because, a complex issue like drought needs a ‘new imaginary’⁷ to address it. And finally, because, a fantastic dream if articulated and communicated properly inspires all concerned to work passionately and persevere relentlessly till this fantastic dream is achieved.*

Principles: Principles, by definition, implicitly emphasise fundamental truths or general rules to be adhered to. This drought strategy is grounded in the following ten principles as the ethical base for action. Offering a mix of the feasible and the desirable, these principles provide direction to the implementers of this strategy for decision making and for guiding practical action for managing the risks of drought in Afghanistan. These principles draw from the spirit of the ANPDF, Disaster Management Law, Water Law, DRR Policy, and other pertinent legislations and policy instruments of GoIRA as well as the Sendai Framework for DRR, the United Nations Convention to Combat Desertification and lessons from global practice of drought risk management. Essentially, these principles are based on the inherent social contract between the citizens of Afghanistan and GoIRA wherein the government’s actions are directed towards the well-being and safety of the citizens, and for which, the citizens agree to be governed. The fulfilment of this social contract means the realization of rights and the practice of responsibili-

ties by both the right-holders and duty-holders. The principles are:

- 1. Risk realization-** Actions will be carried out with the recognition that drought risks can be created because of development actions and varying sectoral priorities, and that mitigation and reduction of risks has to be done within the development paradigm through risk-informed sectoral / development planning, resource allocation, targeting, convergence in implementation, monitoring-review, and communication. Whilst focusing on reducing and mitigating existing risks of drought, emphasis will also be on preventing creation of new risks (due to development and other processes) and managing the residual (unaddressed) risks of drought.
- 2. Coherence, alignment and consistency across policies, programmes and plans-** Planning, resource allocation and implementation of actions will be undertaken in coherence with the commitments made by GoIRA under various global frameworks (especially SDGs and Afghanistan’s National adaptation thereof, Sendai framework on DRR, Paris Agreement, and Grand Bargain) and conventions (UNCCD, Ramsar Convention) as well as will be aligned to existing legislations (Water Law, Disaster Management Law), strategic frameworks (ANPDF), policies (e.g. National Drought Management Policy, DRR Policy, Dry Land Agriculture Policy, Irrigation Policy, NRM Strategy/Policy) and will be consistent with sectoral implementation / action plans by various ministries (e.g. A-CCSAP, NAPA, NPP, AMD Strategic Plan, NCADPP).
- 3. Primacy of rights of at (drought) risk communities and ecosystems-** Decision making processes pertaining implementation of this strategy will prioritise the wellbeing, protection and safety of at drought-risk households and communities, especially Kuchi community and smallholder cultivators in dryland areas, as well as at-risk ecosystems. Their participation in decision making and action will also be prioritized with the recognition that these communities are not a ‘homogenous drought-at-risk group’, are regularly impacted by drought, have been contributing to Afghanistan’s food nutrition security and economy, and have a crucial role to play in drought risk management.
- 4. Polycentric governance-** State (as represented by GoIRA) and the People of Afghanistan both have mutual but varied responsibilities towards effective drought risk management. With the recognition that the primary

⁵ There are a few parallels / examples of drought disaster free in the world. For example, the Prime Minister of Kenya launched the “Ending Drought Emergencies” (EDE) in 2014 through a common programme framework while the “PRONACOSE (National Programme Against Drought)” programme launched by the President of Mexico in 2013 along with the National Policy on Drought recognises that drought risks cannot be fully eliminated but drought disaster can be mitigated.

⁶ Jean-Jacques Rousseau’s social contract theory, which posits that individuals consent to the authority of a state in exchange for the state’s protection of their rights (Rousseau, 1762).

⁷ New Imaginary here means a completely or significantly different way / perspective to conceptualize, frame, think, and approach the issue at hand and function accordingly with a different set of values, systems and actions...

responsibility of drought risk management is of GoIRA; yet it will not rest with the drought-mandated ministries alone. Given that drought risk management requires multi sectoral, scalar and temporal actions; governance of the same will be equally shouldered by pertinent government institutions, development partners and community institutions at all administrative levels based on a “all of society” approach.

5. Resilience in development- Drought risk management planning and actions will be primarily part of normative development / sectoral planning and implementation with a recognition that resilience is not a static end state, but a dynamic set of conditions and processes. Underpinning resilience is the need for better analysis of drought risks at different scalar and temporal levels and for this analysis to inform development / sectoral planning processes and goals so that development actions are not (drought) risk creating or exacerbating.

6. “Build Back Better and Greener”- Recovery efforts after a drought event will focus on bringing households and ecosystems beyond the ex-ante risk levels towards a state of resilience. These recovery efforts will also focus on ensuring non-creation of new risks and mitigate existing risks.

7. Gender equality, Inclusiveness and leaving no one behind- Drought risk management will take into consideration the fact that drought has differential impacts on various population groups due to existing social hierarchies and gender norms. Drought also aggravates existing gender stereotypes and gender-based violence and at times drought response could intensify these stereotypes. These considerations will underpin the planning, designing, implementation, monitoring, review, and knowledge management related various processes of this strategy. Especially, care will be taken to ensure that the implementation of this drought risk management strategy does not accentuate or reinforce the existing gender inequalities and instead creates opportunities to improve the outcomes for women and contributes in enhancing gender equality through allocation of specific financial resources for the same.

8. Transparency and accountability- The citizens of Afghanistan will have a right to timely information about drought risks and the mitigation actions being undertaken to address them. Actions proposed in this strategy and its operational plan will be undertaken against an agreed upon baseline based on which progress will be measured, and citizens will have the right to information

about this progress.

9. Do no harm- Drought risk management related actions, procedures, systems, and institutional arrangements initiated by this strategy will be undertaken in such a way that new risks of drought are not created, existing risks are not exacerbated, environmental damage is not done, and existing societal and gender based inequalities are not aggravated. Further, actions will also be based on approaches of low-cost, community-tested and accepted, and based on traditional knowledge on coping with drought.

10. Praxis- Given that neither drought risks nor the state of resilience is static, drought risk management actions will be undertaken through continuous cycles of action, reflection, learning, and planned action.

3.2 Strategic Priorities

This drought risk management strategy contributes to GoIRA's broader strategic goals of sustainable development, poverty reduction, strengthening agricultural systems and incomes, and safe and peaceful Afghanistan as articulated in the strategic frameworks and priorities. This strategy aligns with the existing strategic priorities and programmes of GoIRA and - given the multi-sectoral, scalar and temporal nature of drought risk management - is pitched as a ‘connector’, ‘implementer’ of pertinent sectoral policy instruments⁸ and ‘strategic gap filler’ for addressing the underlying causal factors of drought. This strategy thus has the following four strategic priorities:

- 1) Strengthening drought risk governance;
- 2) Improving vulnerability and risk assessment capacities;
- 3) Strengthening Early Warning, Early Action and Drought Monitoring Systems; &
- 4) Increasing investments in drought risk mitigation and response.

These priorities are based on the analysis of impact of past droughts and underlying causal drivers of drought risks as well as the current strategic context and direction in Afghanistan. Further, these four strategic priorities are also aligned and consistent with the strategic objectives / pillars as well as the thrust areas

⁸ Sectoral policy instruments inter alia the Dry Land Agriculture Policy, Food Security and Nutrition (FSN) Strategy, NAP, NAPA, INC, Irrigation Policy, NPP-Agriculture, NRM Policy, Rangeland Policy, Water Resource Management Strategy, and AMD Strategic Plan.

and operational plans of these various sectoral policy instruments. Furthermore, these strategic priorities draw upon the three pillars of the High-Level Meeting on Drought Policies^{xvi}, which have been further developed by partners in the Integrated Drought Management Programme and also adopted by UNCCD^{xvii}, and the four priorities of the Sendai Framework for DRR^{xviii}, to which GoIRA is a signatory; hence these have been adapted for the Afghanistan drought risks context. Finally, these priorities are also aligned with the MoF-World Bank led 'water scarcity, food insecurity and famine risks' Framework in Afghanistan. Presented below is the description of the four strategic priorities of this strategy for drought risk management in Afghanistan:

- 1) **Strengthening drought risk governance.** One of the key gaps, emerging from the analysis of current drought risk management practice in Afghanistan, is the lack of a robust drought risk governance system in terms of non-identification of different types of drought along with their definitions attuned to Afghanistan context, lack of formal and timely drought declaration process at the national and sub-national levels, lack of a robust drought disaster data-information management system, and clarity in decision making mandates and institutional arrangements for coherent sectoral investments to systematically address the risks of drought in the country. This priority will hence focus on identifying a set of actions to improve drought related policies, plans, institutions, and decision-making processes particularly in terms of: (i) mechanisms to decide which types (meteorological, hydrological, agricultural, and socio-economic) and characteristics (severity, temporality and spatial intensity) of drought and evolve their respective commonly-agreed national definitions of drought that are in sync with the local contextual realities; (ii) scientific and institutionally robust drought declaration process at national and sub-national levels; (iii) practically relevant institutional arrangements for multi-sectoral and multi-scalar drought risk management; (iv) system for decision making at all levels for convergent sectoral investments on mitigating and reducing existing drought risks, preventing prospective (future/emerging) risks and managing residual risks in case of a drought event; and (v) monitoring and learning processes to regularly analyse various risk management initiatives as well as emerging drought risks to inform future cycles of planning and investment decisions.
- 2) **Improving vulnerability and risk assessment capacities.** Another crucial gap, emerging from the analysis of the current understanding of drought risks - including those exacerbated by climate change, degradation of natural resources, desertification, and underlying vulnerabilities interacting with development deficits -, is the lack of capacities at all levels for drought vulnerability and risk assessment. This priority will thus focus on identifying a set of actions to improve the systems, mechanisms and institutional capacities for drought Vulnerability-Risk assessment (VRA) with emphasis on enhancing the understanding of underlying vulnerabilities, impacts (direct, indirect and cascading) of past droughts, extent of exposure and possible impacts in future due to changing climate, degradation and water stress, and risk managerial capacities (in terms of risk tolerance, absorption and coping as well as recovering from droughts) of drought-prone communities and at-risk ecosystems. Actions under this priority will focus on developing templates for drought specific VRA and procedures thereof using a mix of participatory and technologically (using statistical modelling, earth observations, trend analysis, big data analytics, and data visualizations) informed processes. Guidelines for drought VRA will be developed, pilot tested and detailed VRAs will be undertaken on periodic basis to inform sectoral risk mitigation planning and convergent investments.
- 3) **Strengthening Early Warning, Early Action and Drought Monitoring Systems.** The third critical gap, emerging from the analysis of current drought risk management system in Afghanistan, is the fragmented institutional arrangements for forecasting, early warning, early action, and real-time monitoring of drought. This priority will thus focus on establishing procedures and institutional arrangements to improve the systems, mechanisms and procedures for drought forecasting, early warning and real-time monitoring as well as 'early financing' linked to 'early actions' (anticipatory and absorptive through protective and productive measures) and effective communication of drought risk. These actions will build upon current capacities and reach of drought forecasting, early warning, monitoring, and risk communication systems in Afghanistan as well as ongoing and proposed initiatives for strengthening these systems by AMD, ANDMA, MAIL, MEW, MRRD, and other ministries with support from WMO, World Bank and other agencies. A starting point that provides an overview of the most commonly used drought indicators and indices is provided by

the WMO/GWP Integrated Drought Management Programme^{xix}. The set of actions will be framed to enable the following:

- a. Development of indices and indicators pertaining five variables related to drought viz. (i) precipitation; (ii) agricultural (crop and pasture vegetation conditions, yield projections, livestock health, and such); (iii) hydrological (stream flow, snow pack, groundwater levels, reservoir and lake levels, drinking water availability, soil moisture, and such); (iv) climatic information (temperature, glacier / snowpack melt, hot days, temperature growing periods, rainfall trends, and such); and (v) socio-economic (food nutrition security, income levels, market price-trends, poverty level using the recently developed Afghanistan-Multi Dimensional Poverty Index, displacement/ migration patterns, access to basic services, and such) as well as thresholds and trigger levels thereof that can help in automated / timely generation of early warnings and advisories to all stakeholders concerned.
- b. Developing mechanisms and capacities, especially of sectoral ministries and communities to do drought contingency planning and implement early actions - based on improved forecast, early warnings and drought monitoring - as well as backed up by pre-defined early financing mechanisms. One of the globally learned lesson in response to drought (as a slow-onset disaster) has been the timeliness of drought preparedness and 'early' actions and mitigation measures linked to early warnings and seasonal forecasts.
- c. Establishing clear institutional arrangements for sharing of data-information on the five variables (mentioned in point 'a' above) across mandated / custodian ministries on a timely basis to a nodal agency that is equipped with requisite technological and human resources to analyse these data sets and generate robust forecasts, early warnings and monitoring of drought; which can then be used by sectoral ministries to develop actionable advisories, preparedness measures and early actions as well as communicate the same to end-users (local administration, farmers, herders, water user associations, and city planners/managers amongst others).
- d. Inclusion of local knowledge systems and traditional knowledge of

farmers and pastoralists in the forecasting, early warning and monitoring systems.

- 4) **Increasing investments in drought risk mitigation and response.** Over the years, there have been several initiatives by various sectoral ministries and development partners on watershed development including soil water conservation and irrigation management, natural resources management, river basin management, water-efficient cropping systems, livestock management, and strengthening food nutrition security and rural livelihoods. These have met with limited success due to several factors one of which is divergent and fractured spatial and temporal priorities coupled with, at times, micro and meso scale planning focus. Today's reality is that most of the underlying causal factors and drivers of drought risks still remain unaddressed in Afghanistan. This priority will thus focus on mobilizing resources and increasing investments in various set of convergent actions for effective drought risk management (mitigation, reduction, prevention, preparedness, response, and recovery) and mechanisms to mobilize resources for their implementation. Designing of these actions will be through a 'convergence approach' wherein relevant sectoral ministries will pool available resources to prioritise investments and actions to improve the drought-stressed ecosystems, agricultural (cultivation, herding and pastoral) practices and the skewed hydrological balance. This convergence will be under- pinned by the principles of landscape management, river-basin and sub-basins' based management of land use-hydrological balance translating into scientific watershed and irrigation management, ecosystem based approach, agroecological practices including conservation agriculture and participatory rangeland management, and water availability based dryland as well as drought-resilient agricultural practices. Actions under this priority will build upon the various relevant actions proposed in the Dry Land Agriculture Policy, Irrigation Policy, Food Security and Nutrition (FSN) Strategy, National Water Policy, NRM Strategy, Rangeland Policy, NCADPP, Livestock Policy, NAPA, Afghanistan-Climate Change Strategy and Action Plan, Karez Rehabilitation Action Plan, and other pertinent policy instruments. These actions will also take into consideration evolving risks of drought, changing climate, increased desertification and degradation of natural resources including rangelands and water bodies, and changing vulnerabilities of agropastoral livelihoods in Afghanistan.

Actions proposed under these four strategic priorities have been detailed in the accompanying operational plan document that elaborates the nature, type, location / scale, and the timing-duration of these actions along with their estimated costs, results, lead and supportive responsibilities, and alignment with existing policy instruments (strategic frameworks, policies, strategies, plans, and programmes). Further, the sub-section below explains the pitch of the actions proposed under the strategic priorities while the subsequent sub-section titled, 'Key Actions' provides the key actions within each of these four strategic priorities.

Pitch of actions

This sub-section describes the multi- sectoral, thematic, scalar, and temporal nature of actions that underpins this drought risk management strategy's conceptual framework as provided in the beginning of this chapter.

- **Multi-sectoral:** Given the nature of drought hazard and its multi-sectoral impacts as well as causal drivers, the key actions proposed under the four strategic priorities will focus on the following sectors viz. (i) crop - including dryland and irrigated farming systems -, (ii) livestock, (iii) rangelands, (iv) forests - including agroforestry -, (v) natural resources management, (vi) soil management, (vii) water management - including river basin and sub-basins, watershed, irrigation (macro, meso, micro, off and on farm, supplementary and complementary), soil-water conservation, rainwater harvesting, and demand-supply (urban/rural and industrial/agricultural/ domestic/ recreational) -, (viii) agro-hydro-met based drought forecasting & EWS, and (ix) disaster (drought) management - including declaration, Vulnerability Risk Assessment, preparedness, early actions, response, monitoring, and disaster data-information management system.
- **Multi-thematic:** Within each of the above-mentioned eight (multi) sectors, the key actions proposed under the four strategic priorities will focus on the following thematic areas viz. (i) policy instruments and procedures, (ii) institutional arrangements, systems and capacities, (iii) risk prevention, mitigation, reduction, preparedness, early financing & action, response, and recovery, and (iv) research, learning, monitoring-evaluation, review, and knowledge management.
- **Multi-scalar:** Given that drought risks and impacts cascade across spatial and administrative scales, the key actions proposed under the four strategic priorities will be undertaken at the following scales / levels viz. (i) national, (ii) provincial, (iii) district, (iv) CDC, (v) river basin and sub-basins thereof, (vi) watershed and micro-watersheds thereof, (vii) agroecological zone and sub-zones thereof, (viii) livelihood zone and sub-zones thereof, (ix) rangeland, and (x) farm.
- **Multi-temporal:** A complex hazard like drought needs varied actions of varying durations to be undertaken at different points of time to successfully address the different dimensions of the causal drivers of drought risks. Hence, the key actions proposed under the four strategic priorities will be undertaken in following three phases viz. (i) short term: 2019-21, (ii) medium term: 2022-25, and (iii) long term: 2026-30. Some actions may be implemented in the short term only (for example, ongoing humanitarian response to the 2018 drought will be transitioned to early recovery and further on to risk-informed sectoral development based on the 'humanitarian-development nexus' perspective). Additionally, preparatory and initial / foundational set of actions like detailed assessments, sectoral programme and 'work packages' formulation, setting up of institutional arrangements, finalizing of drought types definitions thereof and declaration process, establishing the drought EWS and disaster-data MIS, and such will be undertaken in the short term. While some actions may begin immediately but reach completion only in the medium or long term (for example, Drought VRA and strengthening of institution, systems and capacities related actions will be started in the short term and continued periodically as per need in the medium and long term), including some actions that could also start in tandem with or as part of the MoF-WB Framework initiative. Similarly, there may be actions that need to be undertaken throughout (for example, sectoral risk mitigation, prevention, and reduction actions, knowledge management, drought impact analysis). This phasing will be informed by following considerations:
 - **Feasibility:** The actions that already have buy-in, have been proven for efficacy through pilots and/ or have already been initiated will be prioritised in the short term.
 - **Emergency Support Functions:** The implementation of this strategy will account for the possibility of drought events necessitating early actions, response and recovery. Towards this, strength-

ening of emergency support functions of the mandated ministries and agencies for improved preparedness, early financing and early actions, rapid response, and recovery planning will get adequate attention in the phasing of actions.

- **Multi-hazard focus:** Even though this is the strategy for drought risk management, actions as part of this strategy will account for the multiple hazards affecting Afghanistan, especially but not limited to, floods, heat and cold waves, fires, and plant-animal pests and diseases. The multi-hazard approach - as also adopted by the Afghanistan DRR Policy - will not only mean that different hazards will require hazard-specific actions to be undertaken, but also that any action should consider the impact of more than one hazard during planning and implementation. For example, (i) planning of soil water conservation and irrigation actions - as part of drought risk reduction - will take into consideration flood-protection structures as well; (ii) introduction of drought-resilient crop cultivation practices will also take into consideration the incidence of pest attacks; (iii) participatory rangeland management practices will take into consideration threats of fire and drought.

3.3 Key Actions

Key actions proposed under each of the four strategic priorities are described below while the accompanying ‘operational plan’ details them out. It is to be noted here that the key actions described below are neither exhaustive nor representative of all the actions necessary for drought risk management; rather these are indicative and suggestive. As explained under the ‘principles’ section earlier and the subsequent chapter on ‘implementation arrangements’, these key actions are to be finalized after the initial detailed assessments and formative studies are completed as well as are to be updated after the first round of review of this strategy. These key actions have been detailed in the operational plan along with an indicative results framework. The key actions under each of the four strategic pillars are:



Drought-affected farm in Balkh, Afghanistan

⁹ The preceding chapter on strategic context has introduced the four types of drought (meteorological, hydrological, agricultural, and socio-economic) along with the various possible definitions in use globally. Further, it has referred to various indicators and indices like the SPI and NDVI (that are already in use in Afghanistan), SPEI, ASIS, and VegDRI and others in use globally. This strategy does not prescribe any indices and indicators and their threshold and trigger levels since these are dependent upon the types of droughts and their definitions chosen taking into consideration the local context, which requires significant scientific analyses and agreement amongst key stakeholders. This strategy hence includes a key action to constitute a short-duration technical committee to look into this as well as the drought declaration process and provide its recommendations to GoIRA for official adoption.

¹⁰ Residual risks are those risks that remain i.e. those risks that cannot / do not get prevented, mitigated and reduced through long term actions... the extent of residual risks determines the impact of a disaster.

- 1) Formation of a short-duration (< 6 months) technical committee to analyse and recommend for adoption by GolRA: (i) types and characteristics of drought, (ii) definitions thereof, (iii) formal declaration of drought process at national and sub-national levels, and (iv) appropriate indices, indicators as well as the threshold and trigger levels thereof as per the proposed definitions of droughts⁹.
- 2) Establishing of institutional arrangements (see next chapter for details) with clear mandates, roles, responsibilities, and accountabilities for implementation of this strategy.
- 3) Putting in place procedures and mechanisms for analysis of drought risks regularly informing the sectoral ministries' annual work planning, resource allocations and prioritizations, targeting, and reviews.
- 4) Establishing a mechanism for collective envisioning and decision making towards convergence of sectoral plans and investments to ensure that new (and exacerbation of existing) risks of drought are not created and existing drought risks are systematically addressed.
- 5) Forming a 'Drought Pool Fund' (see subsequent chapter on resource requirements for details) to finance the implementation of this strategy / ensure drought risk management.

- 6) Strengthening of drought disaster data-information management system, including updating of past drought disasters' data in this MIS.
- 7) Detailed impact analysis study of past (1999 to 2019) and future droughts in Afghanistan.
- 8) Establishing mechanisms for early declaration of drought and linking it to early financing, early actions including shock responsive social protection and rapid response (both of which having a mix of protective and productive measures for chronically, seasonally and shock-affected households), and linking this humanitarian response to long term development work.
- 9) Setting up of drought research and management centres in Kabul - probably under the aegis of the ANWERC (Afghanistan Natural Water and Environment Research Centre) - and 4 provincial Universities.
- 10) Initiating processes / platforms at all administrative levels for encouraging the participation of development partners and drought at-risk communities, especially women, in the decision making related to drought risk management / implementation of this strategy.

Strengthening Drought Risk Governance

1

KEY AC

- 1) Developing templates for drought specific VRA and procedures thereof using a mix of participatory and technologically (using statistical modelling, earth observations, trend analysis, big data analytics, and data visualizations) informed processes.
- 2) Development of guidelines for drought VRA especially in the sectors and at CDC / Shura level and pilot testing of the same as well as ensuring clear roles and participation of women in the same.
- 3) Detailed periodic VRAs and a drought risk atlas to inform sectoral risk mitigation planning and convergent investments.
- 4) Capacity building of CDC / Shura functionaries and various departmental staff for undertaking drought VRAs.
- 5) Drought hazard exposure mapping at national and community level.
- 6) Detailed studies / mapping of sectoral vulnerabilities to drought for e.g. (i) mapping of soil water runoffs within various watersheds (to inform watershed management / SWC actions; (ii) status - including the pasture carrying capacity - of rangelands especially in the context of desertification, land degradation and movement of Kuchi community; (iii) status of micro and macro ecosystems - including water bodies, forests, natural resources - in light of climate change and human influences; and (iv) downscaling of climate change scenarios at agroecological zone / watershed / river basin

scale - including exposure and sensitivity to drought analyses.

- 7) Assessments of impacts of drought on households and productive sectors including dryland / rain-fed and irrigated agriculture, livestock, rangelands and environment, energy, and health sectors.
- 8) Assessment of coping capacities and drivers of vulnerabilities for chronically and seasonally vulnerable households.
- 9) Putting in place mechanisms and processes to regularly analyse and increase the understanding on the characteristics of drought and its underlying and root causes as well as building capacities thereon. Undertaking technical projections / models, analysis of community perceptions of these recent trends - including those specifically of women -, drought mapping and seasonality-trends analysis, strengthened systems for forecasting, early warning, monitoring, and sectoral and human impact analyses.

2

Improving Vulnerability and Risk Assessment Capacities

Strengthening Drought Early Warning, Early Action and Monitoring Systems

3

- 1) Establishing procedures and institutional arrangements to improve the systems, mechanisms and procedures for drought forecasting, early warning and real-time monitoring.
- 2) Establishing clear institutional arrangements - for sharing of data-information for drought forecasting, early warning and monitoring - across mandated / custodian ministries on a timely basis to a nodal agency that is equipped with requisite technological and human resources to analyse these data sets and generate robust forecasts, early warnings and monitoring of drought. This nodal agency will come out with seasonal drought outlooks, long-lead forecasts, long and short-term predictions, in-season fortnightly / weekly updates, scenarios, impact analyses, and all these into palatable, i.e. easy to understand data visualization and analytics including communications / maps about where drought is expected to develop, persist, intensify, improve, and end. Sectoral ministries will then use this information to develop advisories for "end-users" in the form of what to expect (situation), what to do as early actions, how and when to do these actions, and where to obtain technical/material support for the same.
- 3) Developing a system for triggers - linked to threshold levels as per the indices adopted for each type of drought - and timely generation of early warnings and advisories to all stakeholders concerned. This system can be automated once the providers and stakeholders are comfortable with the system.
- 4) Building procedures and capacities, especially of sectoral ministries and communities to do drought contingency planning and implement early actions - based on improved forecast, early warnings and drought monitoring - as well as backed up by

ACTIONS

4

Increasing investments in Drought Risk Mitigation and Response

- 1) Formative studies / assessments of sector-specific drought risks to inform the designing of sectoral prevention, mitigation and reduction detailed plans and programmes. It is suggested that these studies are a mix of scientific and participatory methods, which ensure participation of women in the same right from the conceptualization to analysis and reporting stages of these studies.
- 2) Development and implementation of 'sectoral work packages' (see next chapter on implementation arrangements for details) and programmes through a 'convergence approach' wherein relevant sectoral ministries will pool available resources to prioritise and synchronise investments and actions to improve the drought-stressed ecosystems, agricultural (cultivation, herding and pastoral) practices and the skewed hydrological balance. This convergence approach is to ensure alignment and harmonization of priorities across sectoral, scalar, temporal, investments, and annual work plans so that concerted actions can be undertaken by the various ministries to mitigate, reduce and prevent the underlying sectoral drivers of drought risks. Agroecological zones along with river basins, watersheds and rangelands are to be used as the 'scalar basis' for these sectoral planning in this convergence approach. Further, the principles of landscape management (using land-use and hydrological balance analyses) should underpin the 'scalar basis', which will help while using this convergence approach.
- 3) Technical support to sectoral ministries and agencies in designing and implementing these detailed plans, programmes and sectoral work packages'.
- 4) Supportive actions that create an enabling conditions like: more secure land tenure, better access to irrigation, electricity and agricultural extension, improved access to credit to farming households, land-use change and modification of cropping patterns, increased soil-organic matter and soil cover, improved diversification of livelihoods by adopting off-farm activities and rationalizing of livestock assets, a strong asset base, and diversified risk management options, amongst others will also be aligned / undertaken along with the 'sectoral work packages'.
- 5) Establishment and/or strengthening of adaptative buffers at both ecosystems' and human systems' levels in terms of Water (surface, ground and aquifer) Reservoirs, Forest / Green Covers, Strategic Grain Reserve, Seed and Fodder / Feed Reserve in all drought-prone districts.
- 6) Management of residual risks¹⁰ through a combination of risk transfer and compensatory risk management actions in the sectors like crop and livestock insurance (index/parametric), cash and inputs transfers (using a "Cash+ approach"), contingent credit, compensations, credit rescheduling / waivers, adaptive buffers,

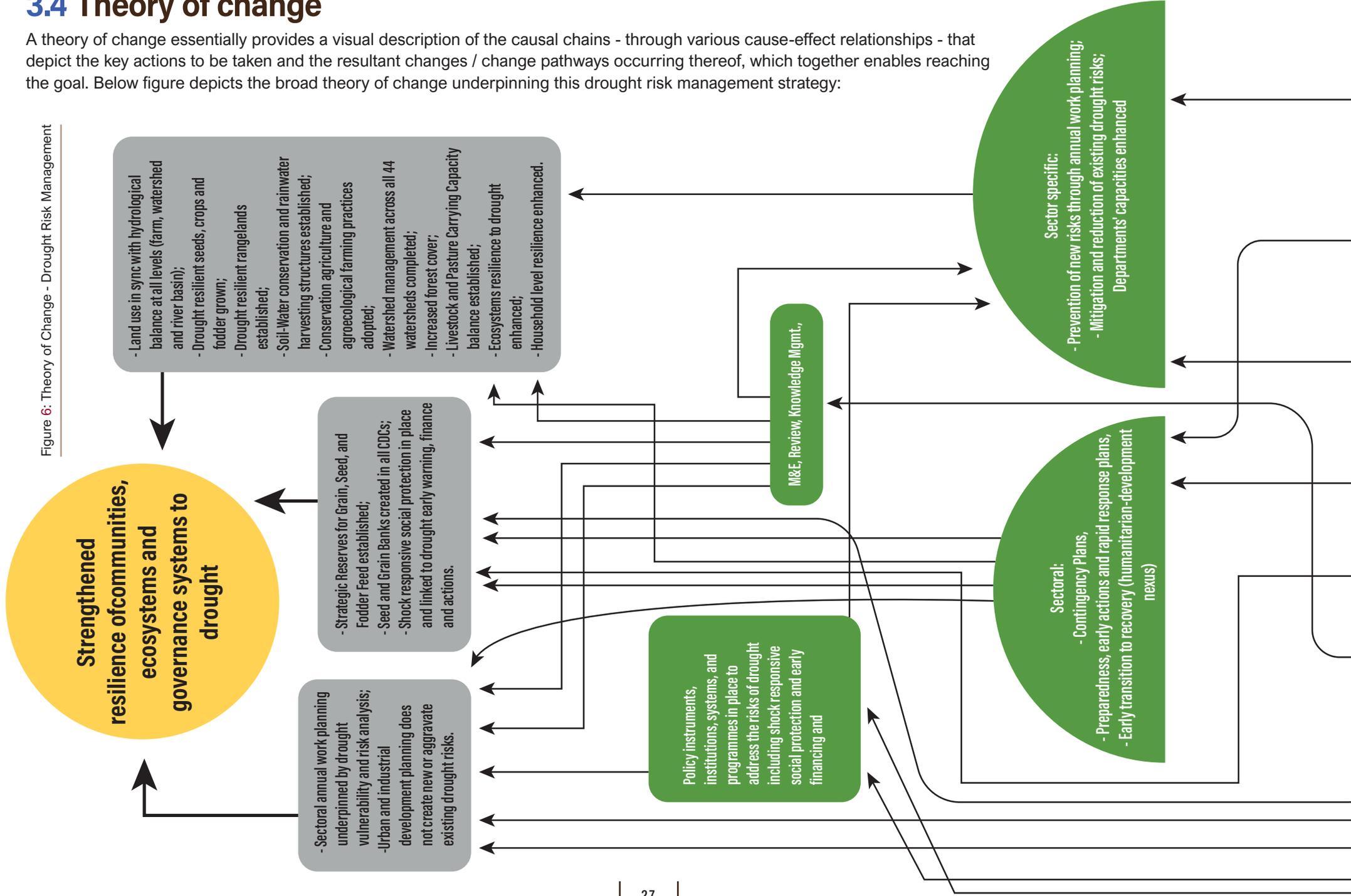
- pre-defined early financing mechanisms and sectoral shock responsive safety nets.
- 5) Partnering with regional (ISRO, TSMS, and such) and global technical institutions (WMO, UNSPIDER, WB, and such) as well as initiatives on ENSO and drought forecasts and early warnings.
- 6) Including 'Impact Based Forecasting' analysis of drought as part of the forecasting, early warning and monitoring system.
- 7) Strengthening technological (earth observations, satellite imagery, big data analytics, modelling, and such), technical (scientific understanding of the different variables and their physical mechanisms which lead to the onset, worsening of, and recovery from drought, prediction & monitoring techniques and drought-MIS), material (data collection, observation stations, and soft/hardware), and human resource (analysts, coders, communicators, and such) capacities as well as the reach of drought forecasting, early warning, monitoring, and risk communication systems.
- 8) Technical support to sectoral ministries for developing actionable advisories, preparedness measures and early actions - based on the received forecasts and early warnings - as well as communicate the same to end-users (local administration, farmers, herders, water user associations, and city planners/managers amongst others).
- 9) Putting in place procedures for effective communication of drought risks to end-users.
- 10) Inclusion of local knowledge systems and traditional knowledge of farmers and pastoralists, including of women, in the forecasting, early warning and monitoring systems.

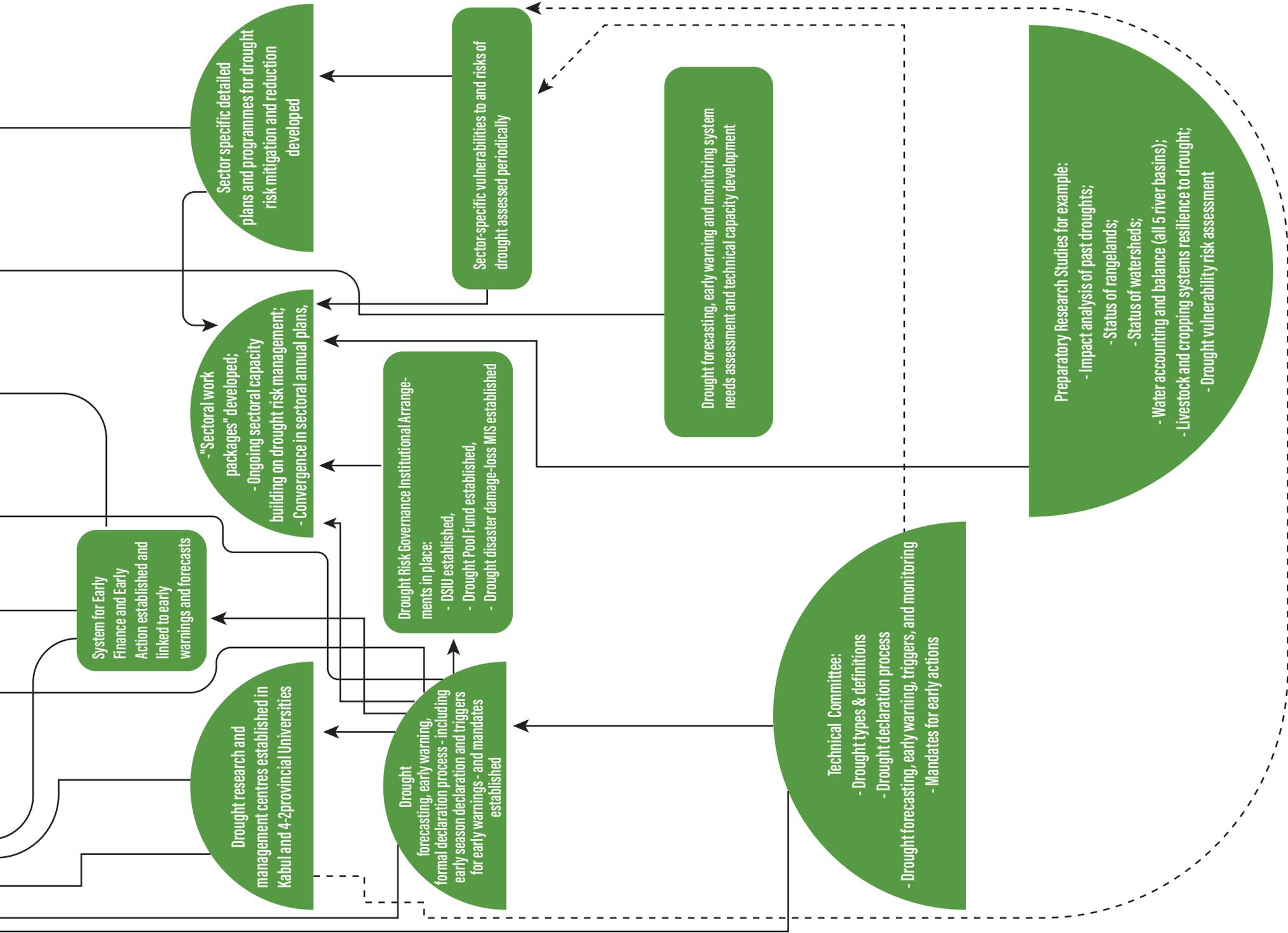
- and such. These residual risk management actions will be linked to drought recovery and long-term risk reduction and mitigation actions through 'humanitarian-development nexus' programming.
- 7) Ongoing action research, 'last mile extension services' and capacity building through Farmer and Pastoral Field Schools on: (i) drought-resilient / heat-water stress tolerant varieties of seed, crop and fodder; (ii) drought-resilient practices of cropping, livestock, natural resources and rangeland management; (iii) on and off-farm water management, rainwater harvesting, supplementary and complementary irrigation, karez and aquifer management coupled with meso-macro irrigation management, and broader watershed and river basin management. This action-research and extension thereof is to be aligned with the research priorities decided in various sectors' strategies, policies and plans as well as the Farmer Learning Resource Centres (FLRC), Veterinary Farm Units (VFU), Perennial Horticulture Development Centres (PHDC), Research Stations of Agriculture Research Institute of Afghanistan (ARIA), Agricultural Faculties at Provincial Universities, and proposed Drought Risk Research and Management Centres in the Kabul and four Provincial Universities.
- 8) Innovations in sectoral actions like: agroecological farming and conservation agriculture practices, reviving traditional less water intensive cereal crops, 'land banks' and pooling, precision agriculture equipment (laser land-levelling, seed-bed preparer, drip irrigation, tillers, zero tillage), aquifer recharging, 'feedlot systems' for rangeland management, semi-circular and trapezoidal bunding across rangeland and mild slopes for soil-water conservation as well as rangeland rehabilitation, cultivation of fast-growing fodder crops, shock responsive social safety nets, and risk communication methods and tools, amongst other such will be strengthened since most of these have already been proposed in the various sectoral policy instruments.
- 9) Awareness raising on and incentivizing water conservation, recycling and rainwater harvesting in urban as well as rural areas combined with the ongoing "Green Wall" and other such initiatives in urban areas on climate change adaptation will be aligned with. Innovative methods for awareness raising like "drought-free CDC competitions", soil-water conservation / watershed management 'championships', CDC annual work-plan/budget incentives, drought "invitational tournaments" for officials, CDC and Shura leaders and students, and such other will be used to raise awareness.
- 10) Regular monitoring, knowledge management, periodic review, and evaluation of the implementation of these 'sectoral work packages' and ensuring role and

3.4 Theory of change

A theory of change essentially provides a visual description of the causal chains - through various cause-effect relationships - that depict the key actions to be taken and the resultant changes / change pathways occurring thereof, which together enables reaching the goal. Below figure depicts the broad theory of change underpinning this drought risk management strategy:

Figure 6: Theory of Change - Drought Risk Management





System for Early Finance and Early Action established and linked to early warnings and forecasts

Drought research and management centres established in Kabul and 4-2provincial Universities

"Sectoral work"
- "Sectoral work packages" developed;
- Ongoing sectoral capacity building on drought risk management;
- Convergence in sectoral annual plans,

Sector specific detailed plans and programmes for drought risk mitigation and reduction developed

Drought forecasting, early warning, including formal declaration process - including early season declaration and triggers for early warnings - and mandates established

Drought Risk Governance Institutional Arrangements in place:
- DSIU established,
- Drought Pool Fund established,
- Drought disaster damage-loss MIS established

Sector-specific vulnerabilities to and risks of drought assessed periodically

Drought forecasting, early warning and monitoring system needs assessment and technical capacity development

Technical Committee:
- Drought types & definitions
- Drought declaration process
- Drought forecasting, early warning, triggers, and monitoring
- Mandates for early actions

Preparatory Research Studies for example:
- Impact analysis of past droughts;
- Status of rangelands;
- Status of watersheds;
- Water accounting and balance (all 5 river basins);
- Livestock and cropping systems resilience to drought;
- Drought vulnerability risk assessment

A complex hazard like drought - particularly in the Afghanistan context - with its various causal drivers of risks interacting with underlying vulnerabilities, climate change effects, development deficits, and conflict requires multi-sectoral, scalar, thematic, and temporal set of actions resulting in varying and interlinked causal chains. As evident from the theory of change visual above, there are multiple direct and indirect causal chains (cause-effect relationships), which interact with and reinforce each other in order to achieve the desired outcomes and goal. The bold / complete arrow-lines show direct causal chain while the dotted arrow-lines show indirect causal chain. The direction of the arrowhead conveys the direction of the causal chain (i.e. cause and effect). At times in a theory of change visual, the shape and size of the boxes / circles denote either the “cause” or “effect” and the level of change; however it is to be noted here that these do not denote either “cause” or “effect” or level of change or even type of action in this visual since many of the “effects” also act as a “cause” for a ‘higher level’ of “effect”. The

depicted causal chains conceptually ‘progress’ from bottom to the top towards the outcomes and goal as envisaged in this strategy. Lastly, it is also to be noted here that this theory of change visual depicts the ‘top-line’ / “broad” causal chains and does not include the detailed / “granular” causal chains since these would be too cumbersome to depict - especially their causal relationships and pathways - as well as too tedious to read / access.

A detailed results framework based on this theory of change will be developed by the DSIU - as of its initial actions - in consultation with all pertinent ministries, departments and agencies. This results framework will then inform the formulation of a detailed monitoring and evaluation framework by the DSIU.



Khosh Toot, Khulm district, Balkh, Afghanistan

CHAPTER 4

IMPLEMENTATION ARRANGEMENTS



4.1 Strategy Implementation Approach

A ‘wicked problem’¹¹ like drought - whose frequency and intensity are increasing over the recent times - needs a shift in the “cultural contract” within government and development partners’ conceptualizations and approaches to tackle drought risks in Afghanistan. Due to incomplete, contradictory, and changing strategic and sectoral requirements, relevant pathways to drought risk management are often difficult to recognize or agree upon. Thus, a strategy for the same and its implementation pathways are neither straightforward nor easily agreed upon. As evident from the theory of change provided in the preceding section, the complexities inherent to managing drought risks require innovative, cross sectoral, and context-specific solutions that can adapt to continuously evolving conditions.

There are no simple linear cause-and-effect (causal) relationships in terms of addressing the interactions of the underlying vulnerabilities and increasing exposure to drought of communities and ecosystems, making it difficult to identify clear links between interventions and drought risk management outcomes / impacts. Hence, drought risk management is a long-term endeavour that necessitates addressing a comprehensive set of interacting conditions by using a varied set of actions and processes. Risk characterization and understanding vulnerabilities are key to framing the implementation approach of drought risk management in Afghanistan.



Drought-affected pasture in Samangan, Afghanistan

¹¹ Wicked problems are those issues for which stakeholders differ on defining the problem itself, let alone the solution(s) to the problem.

“Kaleidoscope approach”: This strategy thus adopts a “kaleidoscope approach”, which is a useful approach for dynamic frameworks / conceptualizations which are ‘alive’ / ‘organic’ to contextual and temporal changes. This approach draws upon the kaleidoscope¹² instrument and has been contextualized for this strategy as consisting of: (i) a ‘starting point’ (i.e. the viewing lens in kaleidoscope), (ii) various ‘lenses’ (i.e. the two or more reflecting surfaces in kaleidoscope), (iii) different ‘pieces’ (i.e. usually the broken coloured glass pieces inside the kaleidoscope), and (iv) varied ‘patterns’ (i.e. the observable designs generated in a kaleidoscope when it is moved / shaken). The ‘starting point’ is any of the core set of actors (i.e. MAIL, MEW, MRRD, MoM, MoUD, ANDMA, AMD, NEPA, and others) who would be implementing this strategy and will thus be using this approach to prioritize and plan. The various ‘lenses’ are the different sub-sectors (viz. crop, water, livestock, rangeland, agroecological zones, NRM, soil, forecasting, EWS, governance, and such), scales (household / CDC / district / province / national / river basin / watershed / landscape and such), time-periods (short / medium / long term), and action themes (risk prevention, mitigation, reduction, and residual risks’ management actions) that will be undertaken as part of this strategy. The different ‘pieces’ are the various types (capacity building, implementation, research, policy-institution, and coordination) sets of actions in each of the sectors that will be undertaken at various levels / scales by the different set of actors. The varied ‘patterns’ are the pathways for implementation emerging from which ‘starting point’, ‘lenses’ and ‘pieces’ are chosen and how these have been aligned. This kaleidoscope approach essentially enables multi sectoral, thematic, scalar, and temporal priorities and actions to be envisaged by the core group of varied actors along varying interlinked pathways of change by adjusting the ‘starting point’ and the sectoral / scalar / temporal ‘lenses’. This pathway is also linked to other possible pathways, which will be generated by taking a different ‘starting point’ and the sectoral / scalar / temporal ‘lenses’. For instance, MAIL could take the crop sector as its ‘starting point’ and use the dryland, risk prevention and long-term ‘lenses’ to come up with a certain pathway while another pathway could be obtained by using the irrigated, risk mitigation, capacity building, and short-term ‘lenses’; both these pathways will be interlinked not only to each other but also to other pathways generated by other actors like MEW or ANDMA. This

approach also enables organic readjusting of pathways based on the ‘feedback’ received and taking into consideration the dynamically evolving context. For example, in case of a drought event in the next 3-4 years then the pathways based on early actions, response and sectoral early recovery can be quickly generated using the various pre-envisaged set of actions. Hence, this strategy adopts the “kaleidoscope approach” wherein a central collective envisioning and steering committee along with relevant ministries will formulate, in a convergence mode, the ‘sectoral work packages’ i.e. pathways of actions that will be dynamically adjusted based on implementation review and systems’ feedbacks on a regular basis. It is to be noted here that the “kaleidoscope approach” is for the overall implementation of the strategy in terms of its conceptual framework especially the interacting four strategic priorities and interlinked key actions therein. For the designing of sector-specific plans, programmes and work-packages, the convergence approach as described in the key actions under strategic priority four is to be used.

¹² A kaleidoscope is an optical instrument with two or more reflecting surfaces tilted to each other in an angle, so that one or more objects on one end of the mirrors are seen as a regular symmetrical pattern when viewed from the other end, due to repeated reflection.

4.2 Institutional arrangements

A complex hazard like drought needs multiple “hands and brains”, working patiently and in tandem with clear and concerted objectives. This also necessitates putting in place clear accountability and financing arrangements as well as coordination and learning processes so that these “hands and brains” have the necessary resources and feedbacks to untangle the varied strands (underlying causal drivers of drought risks). Lastly, measures need to be put in place for ensuring that drought risks do not return after some years - either due to complacency on the part of community or governance or due to changes in the external environmental drivers. The institutional arrangements for the implementation of this strategy hence envision a mechanism that is organic and dynamic to the contextual changes as well as suited to the realities of governance in Afghanistan and underpinned by the ‘kaleidoscope approach’, which enables

interlinked, convergent planning and implementation that can be dynamically modified to respond to contextual changes and implementation feedbacks. These arrangements account for: (a) the existing institutional arrangements in Afghanistan for inter-ministerial multi-stakeholder coordination mechanisms; (b) collective envisioning, coordination and accountability requirements of multi sectoral, scalar and temporal strategy; and (c) a mix of conceptually sound and practically pertinent arrangements suited to the Afghanistan context. The below visual depicts the strategy implementation arrangements:

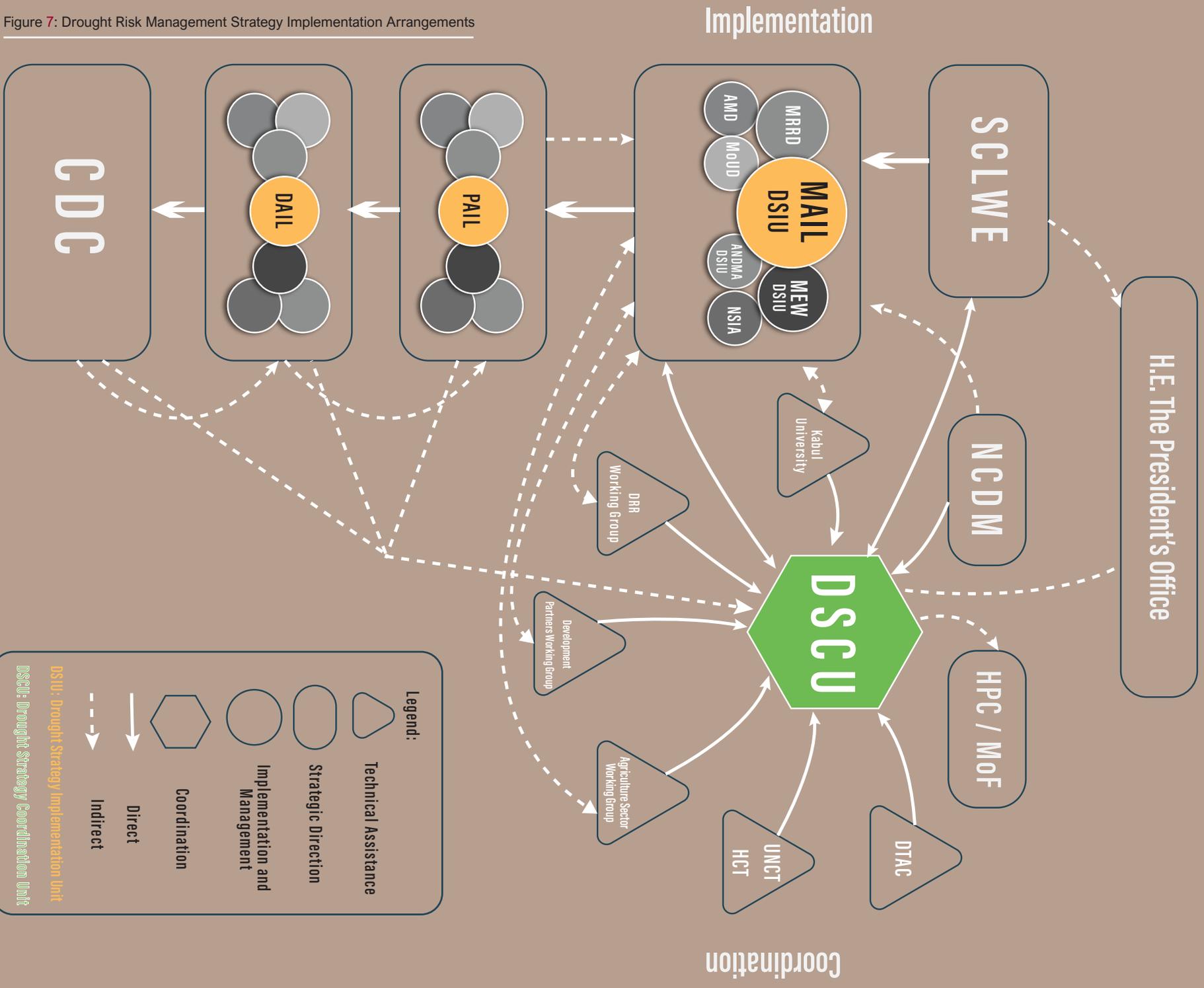


Alfalfa dried field in Dand district, Kandahar, Afghanistan

IMPLEMENTATION ARRANGEMENTS

Drought Risk Management Strategy

Figure 7: Drought Risk Management Strategy Implementation Arrangements



SCLWE: The Supreme Council of Land Water and Environment (SCLWE), chaired by H.E. The President of Afghanistan with various ministers and advisors as members, will be the national steering committee of this drought risk management strategy. The SCLWE has been mandated by the Water Law, and other policy instruments over the last five years, for providing strategic direction on sustainable management of land, water and environment in Afghanistan, which it does through its technical secretariats of MEW (for water), MAIL (for land/crops) and NEPA (for environment). As the national steering committee for the implementation of this drought risk management strategy, the ‘steering function’ of the SCLWE will be to provide the overall strategic direction, oversight, resource prioritization and alignment, ensuring convergence in sectoral planning and investments, assigning ‘sectoral work packages’ for different ministries and agencies, establishing monitoring-evaluation system, and periodically reviewing the implementation to feed into the next round of creation of the ‘sectoral work packages’. The SCLWE will meet at least twice a year to fulfil this steering function. The ‘sectoral work packages’ are programmatic bundles of sector-specific key actions as indicated in this strategy and its accompanying operational plan. Convergence approach (see key actions under strategic pillar 4 for details) will be adopted to align and harmonize the planning, investments and implementation of sectoral actions. Each responsible ministry / agency will implement their respective ‘sectoral work packages’ through their existing departments and implementation mechanisms by integrating these in their respective annual work planning and budgeting process. Further, the SCLWE will align its steering function with fulfilling its core mandate of providing strategic direction to sustainable management of land, water and environment in Afghanistan through its existing technical secretariats. This will thus enable that actions and ‘sectoral work packages’ planned for implementing this strategy are aligned with the annual plans and actions of respective sectoral ministries. Furthermore, the SCLWE will coordinate with the National Disaster Management Commission (NDMC) - through its technical secretariat of Afghanistan National Disaster Management Agency (ANDMA) - for planning of drought preparedness as well as early actions and response measures based on forecasts and early warnings. Lastly, the SCLWE will also coordinate with NDMC / ANDMA to align the drought vulnerability risk assessments with ANDMA led multi-hazard exposure mapping and vulnerability risk assessments in Afghanistan.

DSIU: A ‘Drought Strategy Implementation Unit’ (DSIU) will be created in MAIL to lead and manage the implementation of the agriculture sector related actions

of this drought risk management strategy. Similar such DSIUs will also be created within MEW and SMDM/ANDMA respectively. The specific directorate within these Ministries where these DSIUs will be situated in will be decided by the respective Ministries taking into consideration the respective organization structure and drought strategy actions to be done. This strategy recommends that a Director General (DG) level official should operationally head this DSIU with the support of 3-5 senior specialists / officials to be drawn from within sectoral ministries as well as national / international experts. Head of the respective DSIUs will act as the drought strategy implementation focal points in their respective ministries. A Senior Official within each Provincial Governor’s Office will be designated as focal point for respective Provincial Governors’ offices and will be designated by the respective Provincial Governors. These focal points will coordinate with DSIUs and DSCU in designing, implementing, monitoring, evaluation, reporting, and fiscal management of the ‘sectoral work packages’ of their respective ministries as well as integrating these ‘sectoral work packages’ in their respective ministry’s / provincial administration’s annual work planning and budgeting processes. Further, these DSIUs will be supported by a ‘Drought Technical Advisory Committee’ (DTAC) comprising scientists, academicians from Kabul and other Provincial (proposed: Herat, Kandahar, Balkh, and Takhar) Universities, World Bank and other IFIs, UN Agencies, key donors, and national / international development partners and civil society organizations. Overall, all responsible ministries and departments, as mandated by applicable laws and regulations, will implement this strategy along with its operational plan, the ‘sectoral work packages’ and projects developed as part of the implementation of this strategy. At the provincial and district levels, the respective focal points within the Provincial Governor’s Offices along with the focal points from the various ministries at national level will guide and support respective provincial and district administrations as well as departments’ local implementation units in the implementation of the various ‘sectoral work packages’ at local level. Wherever pertinent and practical, the implementation of these ‘sectoral work packages’ will be done through the CDCs, its sub-committees and community Shuras.

DSCU: A ‘Drought Strategy Coordination Unit’ (DSCU) comprising 3-5 senior officials will be created as the technical secretariat of the SCLWE for coordinating the inter-ministerial actions pertaining the implementation of the drought risk management strategy as well as operationally support the SCLWE in fulfilling its ‘steering function’ towards implementing this strategy. The Head of respective

DSIUs will be part of this DSCU to ensure coordinated planning and implementation of the various inter-ministerial actions of this strategy. The Head of the DSIU in MAIL will act as the ex-officio secretary of this DSCU. Further, the DSIU in MAIL will act as the Secretariat of this DSCU and this strategy recommends that the DSCU also has a senior official from H.E. The President's Office to guide and support the coordination of this strategy's programmatic implementation across Ministries. As noted in the strategic context section of chapter 2, there is no single institution (ministry / agency) currently in Afghanistan that is mandated to comprehensively address the risks of drought or even ensure inter-sectoral coordinated actions for the same. The DSCU along with the DSIUs as the technical secretariat of SCLWE will enable filling of this strategic gap. This coordination role of the DSCU will be done through collectively working with and supporting the various ministries, agencies, provincial and local administrations, and development partners in designing the 'sectoral work packages' and monitoring-evaluation as well as fiscal management of the implementation of the same. The DSCU will organise a joint-meeting with all the focal points at least once every three months to take stock of the implementation of the 'sectoral work packages' and ensuring inter-sectoral aligning and coordination. Additionally, DSCU will organise specific meetings / consultations on designing the 'sectoral work packages' and for monitoring of its implementation. Further, the DTAC will also support the DSCU primarily in aligning the 'sectoral work packages' with the strategic priorities and operational plan of this strategy, provide technical oversight of these 'sectoral work packages' and other actions undertaken for implementing this strategy, provide technical support in the periodic review of the same, and inform the strategic review to be done periodically by the SCLWE.

4.3 Roles and Responsibilities of Sectoral Ministries

Key actions under each of the four strategic pillars have been identified in the preceding chapter and detailed in the accompanying operational plan. Overall, all responsible ministries and departments, as mandated by applicable laws and regulations, will implement this strategy along with its operational plan, the 'sectoral work packages' and projects developed as part of the implementation of

this strategy. Various ministries and agencies will have both lead and supportive roles in the implementation of this drought risk management strategy as follows:

- **MAIL** will have the lead responsibility for Strategic Pillars 1 and 4 by ensuring drought resilience in the crop, livestock, rangeland, soil, irrigation, and agro-met sub-sectors as well as supportive responsibility for Strategic Pillars 2 and 3. Further, MAIL will have the lead responsibility - with guidance from H.E. The President's Office - for setting up the DSIU, DSCU, DTAC, short-duration technical committee (for deciding official drought definition, declaration process and early warning triggers), and widespread communication of the strategy.
- **MEW** will also have the lead responsibility for Strategic Pillar 4 by ensuring the macro and meso level management of water demand-supply including river basin and watershed management, water accounting and balance as well as supportive responsibility for Strategic Pillar 3.
- **MRRD** will have the lead responsibility for strengthening / diversifying rural livelihoods, community level management of water-sanitation supply-demand, physical and cultural rehabilitation of the Karez network, and strengthening the CDCs and Shuras for community level drought early warnings, vulnerability risk assessments and using the same in development planning.
- **SMDM/ANDMA** will have the lead responsibility for Strategic Pillar 2 by ensuring drought exposure mapping, undertaking vulnerability risk assessments, formal declaration of drought disaster, dissemination of early warnings through the emergency operations centre, coordinating drought response, drought disaster damage-loss MIS, and harmonizing the risk assessments and exposure mapping in a multi-hazard approach. ANDMA will also have supportive responsibility for Strategic Pillars 1 and 3
- **NSIA** (National Statistics and Information Authority) will have the lead responsibility for Strategic Pillar 3 by ensuring that institutional and technical aspects are established for effective forecasting, early warning, declaring, and monitoring of droughts in Afghanistan. This will be done by forming a drought sub-committee within the current National Early Warning Committee that is managed by NSIA. This drought sub-committee will coordinate with: (i) the hydro-met forecasting centre of AMD

(Afghanistan Meteorological Department, for meteorological data, forecasts and warnings), (ii) the national flood / hydrological shocks forecasting centre of WRD (Water Resources department, MEW, for hydrological data / warnings and drought forecasts), (iii) MAIL (for agricultural and agro-met data / warnings), (iv) FSAC (Food Security and Agriculture Cluster, for IPC and seasonal / rapid food nutrition security assessments' data / warnings), and (v) other agencies for socio-economic data / warnings as well as IFIs and UN agencies; to analyse these various data / warnings, develop data analytics and visualizations, provide early warnings (including triggers and impact forecasts), and recommendations to: (a) NDMC for declaration of drought disaster, (b) MoF for early financing and (c) Sectoral Ministries (MAIL, MEW, MRRD, MoUD, MoRR, and ANDMA) for early actions.

- **MoUD** (Ministry of Urban Development) will have the lead responsibility for management of urban water demand and supply including rainwater harvesting and recycling of water in urban areas.
- **MoMP** (Ministry of Mines and Petroleum) will have the lead responsibility for aquifer and groundwater mapping and management.

Each ministry / agency will fulfil the above-listed responsibilities through a mix of ongoing projects (both on and off budget) and specially designed 'sectoral work packages'. These responsibilities are to be fulfilled by integrating the drought risk management specific actions into annual work planning by the respective sectoral ministries. These annual work plans will also account for additional measures to be taken within ongoing sectoral projects and programmes so as to 'drought-proof' them as well as account for the 'sectoral work packages', both of which will be implemented by the respective ministries through their regular implementation mechanisms at national and sub-national levels. Further, as mentioned above, all these ministries and agencies will designate one focal point - DG, Policy-Planning - to coordinate and work along with the DSIU in fulfilling these responsibilities.

4.4 Roles and responsibilities of development partners

Partnerships with development partners viz. IFIs (International Financial Institutions), UN Agencies, National and International NGOs, academic and technical institutions, and civil society organizations will be a critical element of the implementation arrangements, as was embodied in the strategy development process as well. These development partners will have supportive responsibility for all the 4 Strategic Pillars within which specifically for the following:

- Participate in technical committees (like the drought early warning sub-committee, DTAC and short-duration committee to be formed under strategic pillar 1);
- Technical assistance in designing of 'sectoral work packages';
- Partner with the various lead ministries, departments and agencies in implementing these 'sectoral work packages';
- Participate in the intersectoral planning of river basin, watershed and landscape management; and accordingly design their own projects to work in a concerted manner with the respective ministries;
- Align own drought management programmes and harmonizing the country priorities / strategies / frameworks with the conceptual framework, especially the four strategic pillars and key actions thereof, underpinning this drought risk management strategy;
- Support - through technical assistance, innovations, and resources - the capacity building of governmental stakeholders in the implementation of this strategy;
- Extend the implementation of this strategy in AGE areas as well as enable feedback loops between drought-prone communities and the processes associated with planning, implementation and coordination of this strategy;
- Provide support in creating awareness about this strategy, various assessments and impact studies, dissemination of early warnings, drought

disaster damage-loss MIS, and supporting CDCs / Shuras for using drought risk analysis / information in local development planning;

- Commit significant financial and technical resources successful implementation of this strategy; and
- Participate in the monitoring, review, evaluation, and knowledge management related processes of this strategy.

4.5 Temporality of implementation

Given that drought risks manifest differently across different scales and sectors as well as within each of the scale and sector, the same drought risk management action may have different practical manifestations across different scales (administrative levels, river basins, watersheds, agroecological zones, rangelands, livelihood zones, farms, and such). Enabling policy environment will be essential but not conditional for the implementation of this strategy. It would be sought that drought risk management actions are rooted in a robust policy-institutional context. At the same time, with the recognition that policy-institutional changes take time, actions will not be conditional on these changes to be in place as a precondition. Whatever is doable will be undertaken as soon as possible; this is based on the perspective that small changes can produce initial ripples, which can be amplified by non-linear effects and associated path dependencies, causing changes that lead to significant and potentially irreversible consequences. While most actions will be undertaken so as to be mainstreamed into ongoing development activities, some actions or group of actions as proposed in this strategy will be undertaken as time and budget-bound projects or ‘sectoral work packages’ to ensure that scaling up into development activities is informed by cycles of action-reflection-action. The temporality (timing and duration) of all actions under this strategy has been detailed in the accompanying operational plan.

Further, even though this strategy has been temporally organized in three phases of short term (2019- 21), medium term (2022-25) and long term (2026-30); implementation of actions is not envisaged as linear and sequential. The temporality (i.e. timing and duration) of actions will depend on the following:

- Foundational actions:** Preparatory and foundational set of actions like detailed assessments / background studies, sectoral programme and ‘work packages’ formulation, setting up of institutional arrangements, finalizing of drought types definitions thereof and declaration process, establishing the drought EWS and disaster-data MIS, and such will be undertaken in the short term;
- Sectoral requisites:** Sectoral requirement wherein sector-specific requisites / requirements will be taken into consideration along with sectoral priorities to include drought risk mitigation and vulnerability reduction measures;
- Drought phases:** ‘Phase of drought’ i.e. if it is a no-drought situation then actions focussing on prevention of new risks (through development and sectoral annual planning), reducing existing risks of drought and system (analytical, knowledge and technical capacities’ base) strengthening will be done; while if it is a ‘drought situation’ (early signs of drought to severe drought to end of drought) then actions focussing on mitigating and recovering from the impacts of drought will be done for example early actions and rapid response in the crop, livestock and water sectors comprising a mix of protective and productive measures that will be linked to earlier transition to sectoral and household level recovery actions; and
- Continuous actions:** Ongoing actions that are needed for the successful implementation of this strategy irrespective of the phase of drought for example actions like vulnerability risk assessments, impact studies, learning and knowledge management, strengthening the evidence base for early warnings, inter-sectoral planning, and such.

4.6 Immediate initial action points

Listed below are the immediate actions towards implementation of this strategy to be taken before December 2019:

1. Official endorsement of this strategy and its accompanying operational plan by MAIL, GoIRA.
2. Presidential decree on the institutional arrangements for implementing this strategy.
3. Special meeting of the SCLWE on operationalizing this drought risk management strategy and agreeing upon initial set of actions as well as actions proposed for the short-term (in operational plan).
4. Setting up of the DSIUs in MAIL, MEW and SMDM/ANDMA, DSCU, the DTAC (scientific advisory committee for designing 'sectoral work packages' and technical oversight) and the short-duration technical advisory committee for recommendations on drought types, definitions, declaration process, and early warning triggers for early financing and actions (see key actions for strategic pillar 1 in preceding chapter).
5. Development and finalization of ToRs and 1st year's workplans of the DSIU (including focal points).
6. Establishing the drought early warning sub-committee within the National Early Warning Committee.
7. Commissioning of formative assessments and studies to inform the formulation of detailed operational plan as well as its results framework and monitoring-evaluation plan.
8. Formulation of a detailed results framework (building on the theory of change provided in the preceding chapter), plan for monitoring, review, evaluation and knowledge management, and a baseline status report for the same.
9. Formulation of the 'Drought Pool Fund' (see next chapter on resource requirements for details) and its management mechanism and procedures.
10. Development of first round of 'sectoral work packages' and initiating the

implementation of actions proposed for the short-term (in operational plan).

11. Widespread publicity, communication and awareness raising of various stakeholders on this strategy.

4.7 Monitoring, Review and Evaluation arrangements

All actions undertaken as part of this strategy will be supported by appropriate monitoring and evaluation mechanisms. The CDC's and respective departments' database and monitoring-reporting mechanisms will be responsible for documenting the implementation of these 'sectoral work packages' and the resultant changes in the drought risks at community level. The theory of change and accompanying operational plan provide an indicative results framework of this strategy, which will be detailed out based on the formative studies and initial detailed assessments that will inform the refining / finetuning and elaboration of the operational plan as well as the formulation of the 'sectoral work packages' and plans. This elaborated results framework will then be the basis of a detailed monitoring-evaluation and knowledge management plan; a baseline for which will also be developed by the DSIU.

This strategy is meant to be a living and dynamic document that has to be reviewed and updated periodically taking into consideration the evolving context, changes to the underlying causal factors of drought risks and the results of the implementation of the 'sectoral work packages' as well as developments in the thinking on drought risk management. First review of this strategy will be done in early 2022 i.e. at the end of the short-term phase. The review and updating of this strategy should also be informed by the enhanced understanding of drought risks emerging from periodic vulnerability-risk assessments as well as enhanced forecasting and drought prediction capacities in Afghanistan. As mentioned above, the SCLWE through the DSUI will review and update this strategy after the end of the three phases (short term: 2019-21; medium term: 2022-25; and long term: 2026-30). Unless extended further or replaced by another strategy, this drought strategy is expected to continue till 2030.

CHAPTER 5

RESOURCE REQUIREMENTS



It will be impractical to accurately estimate the total financial resource requirements for implementing this strategy in its entirety given the myriad set of actions across multiple sectors, scales, themes, and temporal horizons necessary for achieving the vision of drought disaster free Afghanistan as well as the fact that contextual changes will necessitate re-pitching of some of the actions along the way. Hence, indicative initial cost estimates were computed for actions proposed in the accompanying operational plan. These estimates are based on existing cost norms of GoIRA and planning-budgeting assumptions. As per conservative initial estimations, the implementation of this strategy will require a resource envelope of at least USD 5 Billion over the course of next 10-11 years (till 2030). The accompanying operational plan provides action-specific breakup of this initial estimation and the results it will help generate.

It is to be noted here that this entire USD 5 Billion does not represent “new money”, i.e. external / additional resources to be provided as on/off-budget to GoIRA. Rather, it represents convergence in inter-departmental and inter-ministerial annual work planning and budgeting since this strategy - in its intent and implementation - aims to consolidate and align into existing strategic direction and fiscal space of GoIRA as well as introduce need-based new actions specifically for addressing underlying causal drivers of drought risks in Afghanistan. Hence, financial arrangements for the implementation of this strategy will be through a mix of existing and new fiscal resources contributed by GoIRA and pooled together by development partners and private sector. It is to be also noted here that these are not ‘extra’ funds required but rather the investment / costs of embedding drought risk management actions as an extra layer of actions into routine / annual sectoral work planning and budgeting. These funds are to be both ‘on and off budget’ and are to be allocated through the GoIRA annual budgeting process to pertinent ministries and provincial and local administrations as well as development partners. Lastly, this fund will complement and align with the already available climate, environment and development financing instruments accessible to GoIRA.

In order to ensure that these funds are not lost into the routine ministerial / sectoral work planning and budgeting, an earmarked / special ‘**Drought Pool Fund**’¹³ is proposed to be created within the Ministry of Finance (MoF). This ‘Drought Pool Fund’ is to be created through a mix of budgetary resources

earmarked by MoF for drought risk management, donor grants and investments and private sector contributions. Resources can be raised for this Fund through innovative and blended financial instruments like: private sector donations, Zakat, taxation / special drought surcharge, tax concessions to private sector / individuals against contributions into this fund, ‘drought bonds’, donor grants, soft loans from IFIs, ‘results based financing’, and ‘contingent finance’. This ‘Drought Pool Fund’ will be a pooled fund with contributions sought on a rolling basis. An initial allocation of USD 500 Million as seed capital for this ‘Drought Pool Fund’ is proposed that is to be topped up periodically till it attains a ‘critical mass’ of about USD 5 Billion, which can then create ‘self-contributions’ through investments of the ‘Drought Pool Fund’ in safe international financial instruments to earn regular interest. These annual interest earnings can finance ‘sectoral work packages’ and other actions proposed in the operational plan. The precise nature and quantum of contribution, pooling arrangements and fund management procedures will be finalized- by a specially formed technical committee comprising government and nongovernment financial/fiscal management experts - within six months of the formal endorsement of this strategy.

It is proposed that this ‘Drought Pool Fund’ could be managed along the lines of the ARTF. MoF, through guidance of the SCLWE, will put in place a techno-financial unit for the management - viz. fiduciary, financial, appraisal and sanctioning of ‘work packages’, allocations, audits, and reporting - of the ‘Drought Pool Fund’. This techno-financial unit could be situated either within the MoF or in the proposed DSIU (for details of DSIU, see preceding chapter on implementation arrangements) with financial oversight by MoF through a financial oversight committee comprising select independent legal-financial experts / auditors, representatives from WB and other IFIs, UN Agencies and other international / national donors to this ‘Drought Pool Fund’. This Fund is proposed to function as a mix of innovative and blended financial instrument using a “layered risk financing” approach. Within this Fund, there will be a mix of financing instruments that provide following types of financial support to the sectoral ministries:

1. ‘On-budget’ support in the form of direct grants to the various ministries / provincial and district administrations / CDCs towards implementation of the ‘sectoral work packages’ and other actions proposed in the operational plan;

¹³ This “Drought Pool Fund” draws upon a similar recent initiative by Government of Australia, which has introduced the “Future Drought Fund” Bill in the national parliament in Nov. 2018 (house of representatives) and April 2019 (senate) and is close to being passed. This Bill, once passed, will establish the “Future Drought Fund” with an initial credit of AUD 3.9 billion. This will be done through creation of a special account titled, “Future Drought Fund Special Account”, in the National Government (MoF) and funds from this account will be credited to another special (ring-fenced) account titled, ‘Agriculture Future Drought Resilience Special Account’ within the Agriculture and Water Resources Ministry for drought resilience measures. From 2020-21, \$100 million is expected to be made available annually into this special account to invest in important drought resilience projects for Australian farmers and communities.

2. 'Compensatory replenishments' to compensate / replenish the various ministries / provincial and district administrations for the costs incurred by them on system and capacity strengthening actions (as per the operational plan);
3. 'Drought resilience triggering subsidies / top-ups' to various ministries / provincial and district administrations provided certain conditions / "triggers" – like development of sectoral drought risk prevention, mitigation and reduction plans, putting in place appropriate research on bettering the understanding of drought risks and human resources for implementing the drought risk sectoral actions, convergence in inter-sectoral drought risk mitigation planning, adopting landscape management approach through landcover/use and hydrological balance based planning, adopting of ecosystem based approach and other such drought-resilience 'locking-in' actions (detailed "triggers" for this financial instrument will be developed as part of the operationalizing of the 'Drought Fund');
4. 'Results based finance' wherein ministries / agencies will be provided funds after their achievement of pre-agreed results as per operational plan;
5. 'Competitive bids / calls' based project grants to development partners and CDCs for undertaking 'sectoral work packages'; and
6. 'Drought contingency drawdown' through which ministries can access funds for preparedness, early actions and rapid response in case of a drought event, provided these ministries have already earmarked 5-10 percent of their regular annual budget for emergencies / contingencies and already have early action and rapid response plans of how this contingency allocation will be used along with this 'drought contingency drawdown'.

The DSIUs in respective Ministries along with the DSCU will take the lead in working with the Ministry of Finance as well as key donors and UN Agencies to help establish these financing instruments and mobilizing the requisite resources for implementing the strategy.



Drought-affected farmer in Balkh, Afghanistan

CHAPTER 6

OPERATIONAL-PLAN



AFGHANISTAN DROUGHT RISK MANAGEMENT STRATEGY (2019-30): OPERATIONAL PLAN TEMPLATE

Background

As one of response actions to the current (2018-19) drought in Afghanistan, the Government of the Islamic Republic of Afghanistan (GoIRA) through the Ministry of Agriculture, Irrigation and Livestock (MAIL) requested FAO support for the development of a long-term (2019-2030) drought risk management strategy. A series of bilateral meetings, stakeholder consultations and “write-shops” were held with senior officials from MAIL, MEW, MRRD, SMDMHA/ANDMA, NEPA, and AMD as well as with pertinent UN Agencies and International-National development partners. These consultations and meetings have identified strategic priorities and key actions thereunder for addressing the underlying causes of drought as well as developed this operational plan for the implementation of the strategy.

The operational plan details out the key actions identified for the four strategic priorities of the strategy. These specific actions are to be undertaken over the short (2019-21), medium (2022-25) and long-term (2026-30). The operational plan focusses on: (i) what actions to be taken, (ii) when and where to take these actions, (iii) what will result from these actions, (iv) who will lead and have supportive role in these actions, (v) how much will these actions cost, (vi) whether any existing programmes / plans / projects already account for these actions, and (vii) linkages with existing policies / strategies / frameworks / action plans. This actions have been organized as one sheet per sector. These sector-specific actions have been developed through the “write-shops” organized with pertinent sector Ministries.

CROP (includes rainfed / dryland agriculture and irrigated agriculture)												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Screening of New drought resistant varieties of cereal, fodder and medicinal crops				National	Drought tolerant varieties of crops developed	ARIA (Agriculture Research Institute Afghanistan, MAIL)	ARIA, ICARDA, USAID, CIMMYT		2,000,000	ARIA Strategy and Policy, DLA Policy	Ongoing since 2018
2	Release of New drought resistant varieties of cereal, fodder and medicinal crops				Nation wide	Nation wide release of drought tolerance crops	NSB (National Seed Board, MAIL)	ARIA, ICARDA, USAID, CIMMYT		1,000,000	ARIA Strategy and Policy, DLA Policy	Ongoing since 2018
3	Production of drought tolerant certified seed varieties of cereal, fodder and medicinal crops				Nation wide	Drought tolerant certified seed varieties are available / as per requirement	NSB	ARIA, ICARDA, USAID, CIMMYT, ISE (Improved Seed Enterprise), and ANSCU (Afghanistan National Seed Companies Union)		4,000,000	ARIA Strategy and Policy, DLA Policy	Ongoing work but there is typically a shortfall of 40-50% in the availability of certified seeds as per 10% seed replacement rate
4	Distribution of certified seeds to farmers				Nation wide	Access of farmers to certified seeds of drought tolerant varieties	Cereal and industrial crop dept of Extension and DAIL (District level Agriculture Irrigation and Livestock Office) Extension Workers)	FAO and Other NGOs		20,000,000	Agriculture Extension Policy, DLA Policy	Normal activity but emphasis on drought-tolerant certified seed varieties
5	Establishment of dry land research farms, as "Centers of Excellence" for DLF Research-Extension-Education. These centers will focus on drought-resilient crop cultivation practices for all cereal, fodder and medicinal crops, as well livestock production. There are 3 large sites, allocated for DLF in Jawzjan (240-ha), Balkh (102 ha) and Takhar (100-ha). The paperwork associated with Robat-Sangi site in Herat is not complete yet. Herat. Then, there are smaller DLF Farms (10-20 ha) planned for Saripul, Samangan and Badakhshan.				Jawzjan, Takhar, Balkh and Herat	Research, adaptability and demonstration farms developed to provide practical learning opportunities and information access to dryland farmers across all Afghanistan	General Directorate of Extension (Dry Land Farming Coordination Unit)	The General Directorate of Extension, in collaboration with ARIA, ICARDA, USAID, and FAO		8,000,000	ARIA Strategy and Policy and dry land policy and National Wheat Sector Development Strategy and Policy	Dryland agriculture policy and action plan has proposed 4 research / demonstration farms, which will be supported to include drought-resilient crop cultivation related research and extension. Further, these will be linked to the ongoing FLRC (Farmer Learning Resource Centre) initiative of MAIL

6	Use of new technology (climate - drought- smart agriculture, conservation agriculture and agroecological farming) to enhance production of cereal, fodder and medicinal crops				Nation wide	Adoption of new technologies for crop cultivation that are drought resilient	MAIL (ARIA and Extension)	ARIA. CIMMYT, FAO, USAID, WB, ICARDA		6,000,000	ARIA Strategy and Policy and dry land policy and National Wheat Sector Development Strategy and Policy	Research / adaptation of available new and traditional technologies + demonstration + provision of related tools and inputs to farmers + Farmer Field Schools and such; which is ongoing activity of MAIL that will be enhanced particularly with drought focus
7	Buffer stock of different classes (breeder, foundation, registered, and certified) of seeds through: Strategic seed reserve creation at regional level and seed banks at community level				Strategic Seed Reserves (8 regions) Seed Banks community level	Preservation of crop varieties and buffer seed stock created (and made available during crisis)	ARIA, ISE and ANSCU; DAIL Extension	ARIA. CIMMYT, FAO, USAID, WB, ICARDA, WB amnd ANSCU		3,000,000	ARIA Strategy and Policy and dry land policy and National Wheat Sector Development Strategy and Policy	yet to start
8	Construction of storage facilities for Strategic Grain Reserves and Seed Reserves				National (6-8 Provinces)	Facilities for strategic storage of grain created	MAIL	WB/UN agnecies		3,000,000	National Wheat Sector Development Strategy and Policy and Grain Reserve startegy	Ongoing since 2017-18 through World Bank support
9	Promotion of Supplementary Irrigation of rain-fed crops as part of on-farm water management through demonstration / Farmer (Water) Field Schools				Nation wide	Enhanced assured irrigation at farm level and crop productivity	ARIA and Extension	MAIL, ICARDA, FAO and WB		15,000,000	National Wheat Sector Development Strategy and Policy and dry land strategy and policy and extension policy	some projects by ICARDA on supplementary irrigation in Afghanistan
10	Crop performance assessment (annual)				Nation wide	Analysis of crop cultivation and impact of promotion of drought-tolerant seed varieties and crops as well as possible early warning of drought onset / end	NSIA	MAIL, FAO and WFP		2,000,000	NISA and MAIL MOU	Ongoing but not regularly done by MAIL / NSIA with support from FAO-WFP

11	Promotion of techniques and equipment for reduction of crop losses (pre and post harvest)				Nation wide	Reduced crop losses and increased availability of grains and seeds during drought years	Extension Directorate, MAIL	FAO and Other NGOs		2,000,000	National Wheat Sector Development Strategy and Policy and dry land strategy and policy and extension policy	Systematic efforts for crop losses yet to start even though included in the Wheat Strategy
12	Creation of food buffer stocks, initiation of "food/cash for work" programmes, high priority to food production in the most favorable / irrigated areas, diversification from water-intensive crops to less water demanding crops, optimum input use, choosing production systems based on land use capability classification, increased cropping intensity either through harvesting excess rainwater through surface runoff or by improving the ground water recharge and good crop husbandry.				National and subnational	Sustainable agriculture and alternative livelihood activities adopted to the drought context and disseminated among farming communities	MAIL	MEW, NDMC, MoF, Research and science entities, development partners, and end users (CDCs)		90,000,000	NRM, Irrigation, Dryland agriculture policy, strategy and implementation plans as well as many donor funded initiatives and projects by development partners	All MAIL projects (NHLR, OFWM, researches and etc.) already have some components of this activity. This is to be done through a mix of on and off budget with technical support from development partners and drought resilient agriculture research institutions in the region
13	Farmers to be encouraged to develop farm / local level mitigation and contingency plans to mitigate against drought impacts on cultivation, soil, climate, and vegetation (these plans could include: sowing of alternate crops/varieties, soil mulching, weed control, in situ water harvesting and/or run-off recycling, alternate land use systems, development of agriculture on the basis of the watershed approach, water resources development, treatment of lands with soil conservation measures and alternate land use systems, and sustainable livestock management practices).				Nation wide	Sustainable agriculture and alternative livelihood activities adopted to the drought context and disseminated among farming communities	Research and extension directorate of MAIL	Research and science entities, development partners, CDCs / Shuras, and farmers and herders		250,000	NRM, Irrigation, Dryland agriculture policy, strategy and implementation plans as well as many donor funded initiatives and projects by development partners	To be done as on-budget activity with technical support from development partners

14	Studies and research to be carried out to determine the probability of drought hazards' occurrence during crop growing period (phenological stage most susceptible to drought) as per actual crop zones to determine the potential suitability of a specific crop for a given region and the probability of drought risks during the crop growing period				National and subnational	Systematic researches on drought resistant crops conducted	ARIA (MAIL, Research Institute)	MAIL, Research and science entities, UN agencies and farmers in drought-prone area		500,000	Dryland agriculture policy / implementation plan?	To be done as on-budget activity with technical support from development partners
15	Institutional Support: The existing DLF Coordination Unit under the GD of Extension should be strengthened with additional staff and resources. Development of the National Dry Lands Agriculture Policy and its Implementation Plan was made possible under the Australian-funded DLF Project which will come to an end in Oct 2019. New resources must be allocated to maintain a DRMS (or DLA Policy Implementation) Support Unit over the long-term						The DLF Coordination Unit of the General Directorate of Extension	The General Directorate of Extension, in collaboration with ARIA, ICARDA and FAO		55,000,000	Implementation Plan of the DLA Policy	500,000 x 11 Years = 5.5-Million
Total										238,750,000		

LIVESTOCK (includes large and small cattle, poultry, animal health, veterinary, dairy, and meat production)												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Emergency response (Provision of concentrated feed mixture and urea/molasses blocks to drought affected farmers)				Drought-affected areas	Animals' mortality and morbidity reduced	Livestock Directorate of MAIL	ANDMA, MoF, Kuchi Directorate, provincial and district authorities, and CDC / Shuras		50,000,000	Livestock Animal Health Policy	Done as part of emergency response to drought 2018. To be also done as a mix of on-budget (contingency reserve in budget allocation) and off-budget with support from technical agencies / development partners
2	Provision of animal health support, vaccine coverage and medicines to prevent loss of breeding animals				Drought-affected areas	Animals' mortality and morbidity reduced	VFU (Veterinary Farm Units), Livestock Directorate, MAIL	FAO and other development partners		1,000,000	Livestock Animal Health Policy	Done as part of emergency response to drought 2018. To be also done as a mix of on-budget (contingency reserve in budget allocation) and off-budget with support from technical agencies / development partners
3	Conduct Livestock census once every 3(?) years				Nation wide	Data and analysis available on livestock on regular basis	Livestock Directorate, MAIL	NSIA, Kuchi Directorate, MoF, and FAO		500,000		Last done in 2003-04 by FAO
4	Improve facilities for drinking water to animals in pastures				Across all rangelands	Improved animal health, condition and productivity	Livestock Directorate and NRM Directorate, MAIL	MRRD and development partners		5,000,000	NRM, Irrigation, DLA, and Livestock policies / strategies and action plans	To be done as on-budget activity with support from technical agencies / development partners
5	Support for the establishment of livestock unions, cooperatives, councils' farmers groups and Associations and their perspective building on adopting drought-resilient herding / livestock practices				At community level and across rangelands	Strengthened livestock management practices from drought resilience point of view	VFU (Veterinary Farm Units), Livestock Directorate, MAIL	MRRD and development partners		500,000	Livestock Animal Health Policy	To be done as on-budget activity with support from technical agencies / development partners
6	Development and roll out of national training and awareness program focused on animal health and livestock production including appropriate climate-smart technologies and practices to manage threats of drought				National and provincial level	Enhanced awareness and capacities on livestock management in drought conditions and increased animal production	VFU (Veterinary Farm Units), Livestock Directorate, MAIL	FAO and other development partners		1,000,000	NRM, Irrigation, DLA, and Livestock policies / strategies and action plans	To be done as on/off-budget activity with support from technical agencies / development partners

7	Establishment of strategic animal feed storage, including the establishment of fodder banks to ensure availability of fodder when pasture will be scarce				Provincial and district level	Ensured feed availability in times of drought	Livestock Directorate, MAIL	FAO, WB and other donors		5,000,000	Livestock Animal Health Policy , Dry Land Agriculture Policy	To be done as on-budget activity with support from technical agencies / development partners
8	Generation of early warnings and advisories for livestock keepers along with early actions				National, Provincial and community level	Timely early warning information provided to livestock owners	VFU (Veterinary Farm Units), Livestock Directorate, MAIL	AMD, National Early Warning Committee, Kuchi Directorate, FAO and other development partners		100,000	Livestock Animal Health Policy	To be done as on-budget activity with support from technical agencies / development partners
9	Diversify the knowledge and skill sets of the Livestock extension service to include better awareness of feed practices, including rangeland management.				Nation wide	Increased awareness of herders on sustainable usage pastures	VFU (Veterinary Farm Units), Livestock Directorate and NRM Extension, MAIL	FAO and other development partners		50,000		To be done as on / off-budget activity with support from technical agencies / development partners
10	Facilitating access to credit for livestock owners through unions, cooperatives, councils, livestock groups and associations				Nation wide	Livestock owners have opportunity to access credit	MAIL/MoF along with financial institutions	Kuchi Directorate and Development partners				To be done as on-budget activity with support from technical agencies / development partners
11	Upgrade the genetic pool- introduce improved small ruminant breeds				Kabul and livestock research centres and then nation wide	Increased production and productivity of small ruminants	Livestock Directorate, MAIL	Donors, FAO / livestock technical agencies		500,000	Livestock Animal Health Policy , Dry Land Agriculture Policy	To be done as on/ off-budget activity with support from technical agencies / development partners
12	Introduce improved and drought-resilient as well as fast-growing fodder and grass seeds for rangelands				In targeted areas (rangelands)	Improved productivity of rangelands and enhanced fodder availability for livestock	NRM/ARIA of MAIL	FAO and other development partners		100,000	NRM, Irrigation, DLA, and Livestock policies / strategies and action plans, Dry Land Agriculture Policy	To be done as on-budget activity with support from technical agencies / development partners
13	Establish water harvesting infrastructure and reduce water runoff in rangelands				In targeted areas (rangelands)	Assured water availability and increased vegetation in rangelands	NRM/Extension Dept., MAIL	FAO and other development partners		50,000,000	NRM, Irrigation, DLA, and Livestock policies / strategies and action plans, Dry Land Agriculture Policy	To be done as on and off-budget activity with support from technical agencies / development partners
14	Introduce Integrated Livestock Parasite Management and Participatory Rangeland-Livestock Management through Herder Field Schools				In targeted areas (rangelands)	Reduced internal and external parasitic diseases to livestock and sustainable rangelands	VFU (Veterinary Farm Units), Livestock Directorate and NRM Extension, MAIL	Kuchi Directorate, FAO and other development partners		1,000,000	Livestock Animal Health Policy	To be done as on-budget activity with support from technical agencies / development partners
15	Destocking of animals in times of crisis				In targeted areas (rangelands)	Prevention of critical losses for crisis affected livestock owning HHs in times of crisis	Livestock Directorate, MAIL	ANDMA, MoF, Kuchi Directorate, provincial and district authorities, and CDC / Shuras		5,000,000		To be done as on-budget activity with support from technical agencies / development partners
Total										119,750,000		

RANGELAND, PASTURE & FOREST												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Reducing GHGs Emission through forestry and Capacity Building				Across rangelands and forests		NRM, MAIL	FAO and development partners through GEF and other donors' support		100,000,000	Fully linked with NRM, Rangeland & Forest Management Strategy	Ended FAO-GEF Project (2016-19) & Off-Budget (FAO-GEF-081 GEF-5) in Jalalabad & Parwan provinces (budget: USD 1.7 Million). Additionally, to be done as a mix of on and off budget activity with support from technical agencies / development partners
2	Promotion of community-based sustainable land, rangeland and forest management				Across rangelands and forests	1. Involvement of communities to reduce IDP's due to droughts & creation of livelihood for local communities. 2. Sustainable Land & Forest management to address degradation & support communities' livelihood. 3. Minimization of risks posed by climate induced hazards to rangelands and forests. 4. Reduced soil erosion and land sliding.	NRM, MAIL	FAO and development partners through GEF and other donors' support		500,000,000	NRM and Rangeland Strategies	Ongoing FAO-GEF Project (2019-24) as an off-Budget (FAO-GEF-084/GEF-6) in Pakitia, Kunar, Ghazni, Bamyana & Badghis provinces (Budget: USD 64.75 Million). Additionally, to be done as a mix of on and off budget activity with support from technical agencies / development partners
3	Integrated community-based rangeland management and sand fixation				Across all rangelands	1. Rehabilitation of 1827.5 ha land with rainfeed alfa cultivation to reduce soil erosion 2. Cultivation of drought resistant grass varieties on 202.5 ha land for sand fixation	NRM, MAIL	MoF, NEPA, Communities, and technical agencies / development partners		50,000,000	NRM and Rangeland Strategies	Ongoing on-budget initiative of NRM, MAIL in Badkshshan, Baghlan, Balkh, Takhar, Jowzjan, Samangan, Ghazni, Ghoor, Faryab, Maidan Wardak, Kunduz & Herat provinces. Additionally, to be done as on-budget activity with support from technical agencies

4	Forest landscape restoration, management and enhanced ecosystem				In all forest areas	<ol style="list-style-type: none"> 1. Watershed Management 2. Sustainable Forest Management 3. Rangeland & Medicinal Plants Management 4. Capacity Management 5. Forestry Inventory and Data Collection system in place 6. Reduced Biodiversity loss 7. Protected areas management 	NRM, MAIL	GIZ, UNEP, and other donors along with development partners, CDCs / Shuras, and communities along forests		100,000,000	Link with MAIL/NRM Strategy	On-going on-budget projects with (i) GIZ support (budget: USD 17.46 Million) in select forest areas; (ii) UNEP support 2018-22 (budget: USD 6 Million) in Bamyan, Badkhsan, Takhar, Daikundi provinces. and (iii) EU support (2018-, Budget: USD 23.2 Million) in 4 provinces on sustainable energy and ecosystem management. Additionally, to be done as a mix of on and off budget activity with support from technical agencies / development partners
5	Introduce drought tolerant forage and fodder species and expansion of vegetation cover using drought resilient varieties				Across all rangelands	Enhanced vegetation cover and availability of fodder	ARIA, Research and Extension and NRM Directorate, MAIL	Development partners		1,000,000	NRM, Irrigation, DLA, and Livestock policies / strategies and action plans	To be done as a mix of on and off budget activity with support from technical agencies / development partners
6	Pistachio, Wild-almond and Accacia (all three drought-resistant native breeds) reforestation				North to West parts of Afghanistan ("Pistachio belt")	Enhanced vegetation / forest cover that is drought-resilient	NRM, MAIL	Development partners		20,000,000	NRM Strategy	Some work ongoing since 2017/18 under NHLP and NRM strategy on pistachio reforestation. Additionally, to be done as a mix of on and off budget activity with support from technical agencies / development partners
7	Promotion of agroforestry including forest management committee and nursery ("foster mom / mother nursery") at community level in rangeland areas				Rain-fed / dryland and rangeland areas	Diversification of crop-based livelihoods and enhanced forest management systems established	ARIA, Research and Extension and NRM Directorate, MAIL	Development partners		5,000,000	NRM Strategy	UN Agencies supported projects with MAIL on agroforestry promotion in the past few years. Additionally, to be done as a mix of on and off budget activity with support from technical agencies / development partners.
Total										776,000,000		

SOIL Includes: 1) Soil assesment (soil survey, anlaysis and mapping). 2) Soil Fertility (Increase organic matter in the soil). 3) Soil and Water Conservation (rainwater harvesting practices and structures)												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Soil survey, analysis and mapping to be prioritized in the 2018 drought-affected 22 provinces first + Identify most soil erosion and land degradation prone area				National and subnational 22 drought affected provinces first	Soil/land characteristics determined and available for crop-planning as well as land-water management planning; Suitable soil for drought tolerant crops mapped and available for crop planning	Soil research directorate of MAIL	Research and extension department, MAIL and development partners		7,000,000	National Agriculture Research Policy, and Strategy 2018-2028	26 districts in 9 provinces complete as part of a pilot programme (FAO TCP); Concept Note for complete survey submitted; Additionally, this to be done as a mix of both on and off budget activity with support from technical agencies
2	Promotion of increase in soil fertility and organic matter through extension of using bio-digester, compost, manure, mulch, crop rotation, Intercropping, combination of residue management and reduced tillage and etc. in the arable lands by farmers				National and subnational 22 drought affected provinces first	Minimized runoff volume and slow down the runoff velocity, allowing more water to soak into the soil, and ultimately reducing erosion, soil moisture loss and sustain crop productivity	Soil research, and Extension directorates of MAIL	MRRD, NEPA, development partners, farmers, and CDCs / Shuras		1,000,000	National Agriculture Research Policy, and Strategy 2018-2028 and Dryland Agriculture Policy	Conservation agriculture project developed 2 research centres (ARIA & Nanghar); Additionally, this to be done as a mix of both on and off budget activity with support from technical agencies
3	Soil and Water Conservation practices: Conserve water through rain-water harvesting such as construction of reservoirs, check-dams, trenches, terraces, soil bunds, embankments and etc. particularly in hilly area. To be included under water-irrigation sector (next sheet)				National and subnational 22 drought affected provinces first	Improved soil water storage, reduced evaporation, and decreased desiccation. Enhanced captive / protective irrigation available for crop cultivation and livestock	Soil research directorate, Extension directorate and NRM directorate of MAIL	MRRD, NEPA, development partners, farmers, and CDCs / Shuras		50,000,000	National Natural Resource Management Strategy (2017-2021), Dry Land Agriculture Policy	Green Belt project (Kabul province) concept note under preparation; ???
Total										58,000,000		

WATER												
Includes: 1) Small and Medium Irrigation (main, secondary and tertiary canals) and Karez rehabilitation including on/off-farm water management, 2) Major Irrigation (main, secondary and tertiary canals including diversions) and on farm water management, 3) Watershed management, rainwater harvesting, small storage & conservation structures, 4) Groundwater recharge, 5) Dams (Medium and Large storages), 6) River Basins and sub-basins management.												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Rehabilitation of existing national Hydro-meteorological network and establishing of new hydro-meteorological stations as per requirement in all five river basins				Nation wide	Hydromet stations and network for hydromet data collection established	WRD / River Basin Authority, MEW	MAIL,AMD, technical agencies, World Bank, other donors, and UN agencies		20,000,000	Afghanistan Water sector strategy 2008, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	Details of ongoing projects for this to be added: Additionally, this to be done as a mix of both on and off budget activity with support from technical agencies
2	Conduct appropriate studies, identify specific pilot programs, capacity building programs, experimentation, and customize river basin institutional structures taking into consideration drought risks and exposure of water management structures.				National	Baseline analysis and appropriate practices available and improved organizational structure and water management system based on drought risks	WRD / River Basin Authority, MEW	MAIL, MRRD, Academic institutions, development partners, and drought-affected communities		2,000,000	Afghanistan Water sector strategy 2008, MoF-WB Framework and Irrigation policy / strategy	To be done as off-budget activity with support from technical agencies / development partners
3	Preparation of flood and drought risk maps of each river basin including water accounting analysis of each river basin				Flood-Drought risk mapping for all 5 river basins: Water accounting for the North and Helmand river basins	Flood and drought risks mapped and water accounting plans available for land-water management planning/ actions	WRD / River Basin Authority, MEW	FAO and other technical agencies		100,000		Harirod-Murghab river basin water accounting under process under OSRO502 project; Plan for Kabul and Panj-Amu river basins water accounting under GCP096 (by 2021); Other projects' (ADB / WB / JICA / ...???) to be added; To be done as off-budget activity initially and then as on-budget activity with need-based support from technical agencies

4	Rehabilitation of all small, medium, and large traditional irrigation schemes; Increasing water use efficiency through capacity building / awareness of WUA, CDCs, and IAs on water-demand management, cropping pattern, water use, mulching, and such; Enhancement of irrigation methods (drip, sprinkler, etc.)				All provinces with priority in the 22 drought-affected provinces first how many irrigation schemes not yet covered under existing and planned projects???	Sustainable water resources management and land-water participatory demand-supply management enhanced	WRD / River Basin Authority of MEW along with Irrigation department and extension directorate of MAIL and CC / Regional Programme of MRRD	Donors and development partners		350,000,000	Irrigation Policy	Details of ongoing projects for this to be added: Additionally, this to be done as a mix of both on and off budget activity with support from technical agencies
5	Comprehensive study of five national river basins to prioritize the irrigation projects including storage dams and hydropower projects				Five River basins	Analysis of water resources available across river basins to inform irrigation and land-water management programmes to ultimately ensure sufficient and equitable water for various basic needs.	River Basin Directorate, MEW	MAIL, MRRD, MoUD, NEPA, Academic research centers, Donors,		2,000,000		Details of whether study already commissioned and at what (procurement in 2 lots) stage to be added: To be done as off-budget activity with support from technical agencies
6	Construction of medium and large storage dams				Five River basins	Flowing uncommitted water outside the country is controlled, effective use of surface water is improved and ground water is recharged	Dam management division, MEW	MAIL, MRRD, technical institutions, and donors		2,000,000,000		Details / ongoing projects to be added: To be done as on-budget activity
7	Participatory Integrated management of watersheds; decreasing surface runoff, rain water harvesting, controlling soil erosion				National(34 or 41 Watersheds???)	Enhanced conservation, use and sustainable management of watershed resources to meet the demands of growing population	MEW (general water management dept.? / RBA?)	MAIL, MRRD, UN agencies, CDCs / Shuras and development partners		100,000,000	NRM, Irrigation, DLA, and Water sector policies / strategies and action plans, Dry Land Agriculture Policy	Details / ongoing projects to be added: To be done as a mix of both on and off budget activity with technical and implementation support from development partners
8	Ground water artificial recharge, aquifer management, sustainable use of ground water				National, particularly in the 22-drought affected provinces of 2018	Strengthened groundwater resources and systems in place for sustainable use of the same	Ground Water Directorate, MEW	MRRD, UN agencies, NGOs, CDCs,		100,000,000	Water Law, DLA, Irrigation and Water sector policy / strategy and action plans	Lendell Mills under ADB project in Kabul province / city? Additionally, to be done as a mix of both on and off budget activity with technical and implementation support from development partners

9	Prepare Dam Operations' Manual indicating operations in irrigation, power house and water supply and maximum levels not to be crossed for every drought related situation (Flood, normal, drought, severe drought)				Kabul / National level	Robust system established for dam operations management especially in times of extreme events	Dam management division, MEW	Technical agencies		50,000	Water Law, Irrigation and Water sector policy / strategy and action plans	Details / ongoing projects to be added: To be done as a mix of both on and off budget activity with technical and implementation support from development partners
10	Conduct modelling exercise for extreme events (especially minimum flows)				Kabul / National level and all 5 River basins	Scenarios of extreme hydrological events available for contingency and risk prevention / reduction planning	WRD, MEW	NEPA, NSIA and Technical agencies		50,000		To be done as a mix of both on and off budget activity with technical and implementation support from development partners
11	Prepare Drought Management Plans for the different basins and sub-basins based on the results of the modelling exercise				All 5 river basins	Drought management plans available and widely disseminated	Dam management division, MEW	MAIL, MRRD and Technical agencies		100,000	DRR strategy	To be done as a mix of both on and off budget activity with technical and implementation support from development partners
12	Prepare a through assessment of the groundwater potentials in the different parts of the country including areas where restrictions need to be put on groundwater extraction				Nation wide with priority in the 22-drought affected provinces in 2018	Analysis of groundwater resources available to inform groundwater management at local level	Ground Water Directorate, MEW	Technical agencies		10,000,000	Water Law, DLA, Irrigation and Water sector policy / strategy and action plans	To be done as a mix of both on and off budget activity with technical and implementation support from development partners
13	Promotion of Rain Water Harvesting at community level in both urban and rural areas				Nation wide with priority in the 22-drought affected provinces in 2018	Enhanced conservation, use and sustainable management of watershed resources to meet the demands of growing population	WRD, MEW along with Irrigation department of MAIL, CC / Regional Programme of MRRD, and MoUD in urban areas	Donors and development partners		50,000,000	Water Law, DLA, Irrigation and Water sector policy / strategy and action plans	Details / ongoing projects to be added: To be done as a mix of both on and off budget activity with technical and implementation support from development partners
14	Karez rehabilitation				Targeted areas (presence of Karez)	Revival of traditional water management practices and enhanced water conservation	Karez Department, MRRD	Donors and development partners		50,000,000	Karez Rehabilitation Strategic Plan	Karez rehabilitation started by Karez department of MRRD and other projects supported by WB, UNDP, UNESCO, JICA/ ADB, amongst others; Additionally to be done as a mix of both on and off budget activity with technical support from development partners
Total										2,684,300,000		

Drought Forecasting, Early Warning, Early Actions, Monitoring, Advisories, and Communications												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Establishing procedures and institutional arrangements to improve the systems, mechanisms and procedures for drought forecasting, early warning and real-time monitoring				National and subnational	Robust national drought forecasting, early warning and monitoring system established	NCDM along with SCLWE	H.E. President's Office, NSIA, ANDMA, AMD, MAIL, WRD, FSAC, NEPA, Academia, Research and science / technical entities, development partners, and CDCs			Presidential Decree on N-EW-C, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	Ongoing various initiatives: Agromet Project, NSIA system strengthening, AMD Strategic Plan, WRD drought forecasting unit, National Hydrological Forecasting Unit related ongoing initiatives, and MoF-WB Framework 1st working group
2	Establishing clear institutional arrangements - for sharing of data-information for drought forecasting, early warning and monitoring - across mandated / custodian ministries on a timely basis to a nodal agency designated for EWS. This nodal agency will come out with seasonal drought outlooks, long-lead forecasts, long and short-term predictions, in-season fortnightly / weekly updates, scenarios, impact analyses, and all these into palatable i.e. easy to understand data visualization and analytics including communications / maps about where drought is expected to develop, persist, intensify, improve, and end. Sectoral ministries will then use this information to develop advisories for "end-users" in the form of what to expect (situation), what to do as early actions, how and when to do these actions, and where to obtain technical/material support for the same.				National and subnational	Institutional arrangements established for data sharing across ministries / agencies to designated lead agency for EWS. Drought seasonal outlooks, forecasts, early warnings, and monitoring reports / communiques developed on regular basis and shared to sectoral ministries. Sector-specific advisories developed by sectoral ministries and disseminated to communities, CDCs and provincial / district administrations.	NCDM along with SCLWE	H.E. President's Office, NSIA, ANDMA, AMD, MAIL, WRD, FSAC, NEPA, Academia, Research and science / technical entities, development partners, and CDCs		500,000	Presidential Decree on N-EW-C, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	In addition to above-mentioned ongoing initiatives, this activity to be done on-budget with technical support from UN Agencies and drought research centres (to be) established in Kabul and other universities

3	Developing a system for automated triggers - linked to threshold levels as per the indices adopted for each type of drought - and timely generation of early warnings and advisories to all stakeholders concerned.				National	Context and sector specific drought early warning indicators and triggers are created and timely disseminated	EWS Lead agency	NSIA, ANDMA, NEPA, MAIL, WRD, FSAC, Academia, Research and science / technical entities, development partners, and CDCs / Shuras		100,000	Presidential Decree on N-EW-C, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	In addition to above-mentioned ongoing initiatives, this activity to be done on-budget with technical support from UN Agencies and drought research centres (to be) established in Kabul and other universities
4	Building procedures and capacities, especially of sectoral ministries and communities to do drought contingency planning and implement early actions - based on improved forecast, early warnings and drought monitoring - as well as backed up by pre-defined early financing mechanisms and sectoral shock responsive safety nets.				National, provincial, district and community / CDC / Shura level	Drought contingency planning improved at national and sub national level	MAIL, MEW, MRRD	ANDMA, NEPA, NSIA, Drought research centres, development partners, and CDCs / Shuras		500,000	DRR Strategy, DM Law, and HRP	FSAC along with UN and CSO partners do contingency planning along with MAIL, NSIA, ANDMA, and MoRR (Directorate of Returnees and Refugees) In addition to this, the contingency planning will be done as an annual on-budget activity with support from technical agencies / development partners
5	Partnering with regional (ISRO, TSMS, and such) and global technical institutions (WMO, UNSPIDER, WB, and such) as well as initiatives on ENSO and drought forecasts and early warnings.				Kabul	Global and regional partnership on drought forecast are created and strengthen	AMD along with EWS lead agency	ANDMA, WRD, MAIL, NSIA, Academia, Research and science / Technical entities, and UN agencies		100,000	Presidential Decree on N-EW-C, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	AMD to do this as on-budget activity with support from WMO (World Meteorological Agency) and Regional / National Meteorological / Forecasting Agencies
6	Including 'Impact Based Forecasting' analysis of drought as part of the forecasting, early warning and monitoring system.				National and subnational	Strengthened drought EWS	AMD along with EWS lead agency	ANDMA, WRD, MAIL, NSIA, Academia, Research and science / Technical entities, and UN agencies		100,000	NA	EWS Lead agency to this as on-budget activity with support from WMO and technical organizations / UN agencies

7	Strengthening technological (earth observations, satellite imagery, big data analytics, modelling, and such), technical (scientific understanding of the different variables and their physical mechanisms which lead to the onset, worsening of, and recovery from drought, prediction & monitoring techniques and drought-MIS), material (data collection, observation stations, and soft/hardware), and human resource (analysts, coders, communicators, and such) capacities as well as the reach of drought forecasting, early warning, monitoring, and risk communication systems.				National and subnational	Strengthened and scientifically robust technological, technical, material, and human capacities and resources on EWS established	EWS Lead agency along with AMD, NSIA, MAIL, WRD	ANDMA, Academia, Research and science / technical entities, UN agencies and end users (CDCs)		5,000,000	Presidential Decree on N-EW-C, Hydromet Roadmap, CONOPS (WRD), MoF-WB Framework, ANDMA DRR Strategy, and AMD Strategic Plan	In addition to existing ongoing initiatives listed in row 1 above, this activity is to be done as on-budget activity with support from technical / UN agencies
8	Technical support to sectoral ministries for developing actionable advisories, preparedness measures and early actions - based on the received forecasts and early warnings - as well as communicate the same to end-users (local administration, farmers, herders, water user associations, and city planners/managers amongst others).				National and subnational (provincial, district and community levels)	Actionable preparedness and early actions developed and disseminated to all end users on a timely basis	Sectoral ministries	Academia, Research and technical organizations and UN Agencies		200,000	NA	To be done as on-budget activity by respective sectoral ministries (MAIL, MEW, MRRD, MoUD, and others) with support from technical and development partners
9	Putting in place procedures for effective communication of drought risks to end-users.				National and subnational (provincial, district and community levels)	Procedures established for communication of drought early warnings and risks to all end-users	NSIA, ANDMA, MAIL, WRD, MRRD	Development partners and end users including provincial and district authorities and CDCs / Shuras		200,000	NA	To be done as on-budget activity by respective sectoral ministries (MAIL, MEW, MRRD, MoUD, and others) with support from technical and development partners
10	Inclusion of local knowledge systems, citizen scientists, and traditional knowledge of farmers and pastoralists, including of women, in the forecasting, early warning and monitoring systems.				National and local (district and community levels)	Local and traditional knowledge included in the national early warning system	EWS Lead agency	ANDMA, AMD, NSIA, MAIL, MEW, Development partners and CDCs / Shuras			DRR strategy	To be done as on-budget activity by the EWS lead agency with support from development partners

11	Historical analysis of drought in Afghanistan (drought climatology, impacts, magnitude, frequency) for different livelihood zones in Afghanistan.				National and subnational	Analysis of historical drought data available to inform annual sectoral work planning and understanding future droughts' impact on livelihoods	DSIU	Sectoral ministries, ANDMA, NEPA, NSIA, Academia, Research and science entities, development partners, World Bank, and impacted communities		500,000	DRR Strategy, DM Law, and HRP	EFSA does early impacts & needs assessment (sample study). In addition to this, this activity to be done as off-budget with support from development partners
12	Capacity building of government stakeholders on operational assessment of drought (ground, satellite and soil moisture data and media) - risk and impact assessment - assessing sensitivity to drought of different agroecological land use systems and identification of vulnerable population groups. Operational system of drought Impact assessment aims at assessing drought impacts on the national economy and society, especially on agriculture. The drought impact assessment system should include database, statistics analysis software, methodology for impact assessment and appropriate models, graphics software, a disaster search system, and an expert system to assess drought impacts.				National and subnational	Capacities of government stakeholders improved on technical assessment of drought impact	NSIA	ANDMA, MAIL, WRD, MRRD, NEPA, Academia, Research and science entities, UN agencies and end users (CDCs)		100,000	NA	To be done as off-budget activity with support from technical agencies
13	Developing an interactive drought information clearinghouse and delivery system for products and services—including an internet portal and standardized products (databases, forecasts, Geographic Information Systems (GIS), maps, etc.).				Kabul	Open access online portal for drought information and analytics established	ANDMA	NSIA, Research and science entities and development partners		200,000	NA	To be developed as off-budget activity and managed through on-budget annual work planning of ANDMA with technical support from development partners
14	Inclusion of drought vulnerability, risk and resilience related questions in the ALCS, SFSA, EFSA, and other relevant national surveys				National	National assessments are drought risks and information oriented	NSIA	ANDMA, NEPA, MAIL, MRRD, WRD, Academia, Research and science entities, and development partners		NA	NA	To be done as on-budget activity
										7,500,000		

Drought Vulnerability and Risk Assessment, Risk Perceptions and Awareness Building												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Developing templates for drought specific VRA and procedures thereof using a mix of participatory and technologically (using statistical modelling, earth observations, trend analysis, big data analytics, and data visualizations) informed processes.				National	Drought specific VRA template and procedures developed	DSIU (Drought Strategy Implementation Unit) along with ANDMA	Sectoral Ministries, NEPA, NSIA, Academia, FSAC, Research and science entities, UN agencies and end users (CDCs)		20,000	NA	To be done as off-budget activity with technical support from development partners and to be linked to ALCS, FSAC Assessments, and Afghan geonode as well as the VRA / hazard exposure mapping ongoing in ANDMA
2	Development of guidelines for drought VRA especially in the sectors and at CDC level and pilot testing of the same as well as ensuring clear roles and participation of women in the same.				National and pilot testing in 1 drought-prone province	Drought specific VRA guidelines developed and disseminated and pilot testing done	DSIU (Drought Strategy Implementation Unit) along with ANDMA	Sectoral Ministries, NEPA, NSIA, Academia, FSAC, Research and science entities, UN agencies and end users (CDCs)		50,000	NA	To be done as off-budget activity with technical support from development partners and to be linked to ALCS, FSAC Assessments, and Afghan geonode as well as the VRA / hazard exposure mapping ongoing in ANDMA
3	Detailed periodic VRAs and development of a drought risk atlas to inform sectoral risk mitigation planning and convergent investments.				National and nation-wide	Drought specific VRAs and Drought Risk Atlas developed	DSIU (Drought Strategy Implementation Unit) along with ANDMA	Sectoral Ministries, NEPA, NSIA, Academia, FSAC, Research and science entities, UN agencies and end users (CDCs)		5,000,000	NA	To be done as on-budget activity with technical support from development partners and to be linked to ALCS, FSAC Assessments, and Afghan geonode as well as the VRA / hazard exposure mapping ongoing in ANDMA

4	Capacity building of CDC functionaries and various departmental staff for undertaking drought VRAs.				All districts	CDCs enabled to undertake drought VRA	MRRD	MAIL, ANDMA, development partners, and end users (CDCs)		500,000	Citizens Charter and DRR Strategy	To be done as on-budget activity with technical support from development partners
5	Detailed studies / mapping of sectoral vulnerabilities to drought for e.g. (i) mapping of soil water runoffs within various watersheds (to inform watershed management / SWC actions; (ii) status - including the pasture carrying capacity - of rangelands especially in the context of desertification, land degradation and movement of Kuchi community; (iii) status of micro and macro ecosystems - including water bodies, forests, natural resources - in light of climate change and human influences; and (iv) downscaling of climate change scenarios at agroecological zone / watershed / river basin scale - including exposure and sensitivity to drought analyses.				Nation-wide especially in all 8 agroecological zones, 34 major watersheds (within the 5 river basins) and major rangelands	Sectoral and ecosystems' vulnerabilities to drought are mapped and analysed	MAIL	MEW, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		1,000,000	Strategies of NRM, Irrigation, Water Management, Dryland Agriculture, Rangelands, and Livestock sectors as well as NAPA and A-CCSAP	To be done as off-budget activity with technical support from development partners
6	Putting in place mechanisms and processes to regularly analyse and increase the understanding on the characteristics of drought and its underlying and root causes. Undertaking technical projections / models, analysis of community perceptions of these recent trends - including those specifically of women -, drought mapping and seasonality-trends analysis, strengthened systems for forecasting, early warning, monitoring, and sectoral and human impact analyses.				National and across CDCs particularly in drought-prone/ impacted communities	Procedure and system for regular analysis of drought hazard and projections of future droughts establishd	DSIU	Sectoral ministries, ANDMA, NEPA, NSIA, Academia, Research and science entities, development partners, and CDCs / communities		100,000	DRR strategy	To be done as on-budget activity with technical support from development partners
Total										6,670,000		

Drought Governance (includes: Definition, Declaration and Institutional Arrangements for coordination, resource allocations and decision making)												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Establishing of institutional arrangements with clear mandates, roles, responsibilities, and accountabilities for implementation of this strategy.				National and subnational	Institutional arrangements for implementing strategy established	SCLWE (Supreme Council of Land, Water and Environment)	H.E. President's Office, Sectoral ministries, ANDMA, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		0	NA	
2	Putting in place procedures and mechanisms for analysis of drought risks regularly informing the sectoral ministries' annual work planning, resource allocations and prioritizations, targeting, and reviews.				National	Regular drought risks informed sectoral ministries' annual plans developed	Respective sectoral ministries (MAIL, MEW, MRRD, MoUD) and agencies (AMD, ANDMA, NSIA, NEPA)	DSIU, Academia, Research and science entities, UN agencies and end users (CDCs)		0	NA	
3	Establishing a mechanism for collective envisioning and decision making towards convergence of sectoral plans and investments to ensure that new (and exacerbation of existing) risks of drought are not created and existing drought risks are systematically addressed.				National and subnational	SCLWE and DSIU (Drought Strategy Implementation Unit)	SCLWE, HPC, NCDM, DSIU	ANDMA, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		0	NA	
4	Forming a 'Drought Fund' to finance the implementation of this strategy / ensure drought risk management.				National	drought fund established and materialized for proper and on time drought risk management	MoF, DSIU	ANDMA, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		0	NA	
5	Strengthening of drought disaster data-information management system, including updating of past drought disasters' data in this MIS.				National and subnational	MIS for drought data collection established and desiminted across the sectoral ministries	ANDMA	MAIL, NSIA, WRD, Academia, Research and science entities, UN agencies and end users (CDCs)		300,000	DRR Strategy	NDMIS of ANDMA has been established
6	Detailed impact analysis study of past (1999 to 2019) and future droughts in Afghanistan.				National and subnational	Analysis of magnitude of potential future droughts and past droughts available for wider use in planning	MAIL	ANDMA, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		100,000	NA	To be initiated as off-budget activity with support from technical organizations and development partners

7	Establishing mechanisms for early declaration of drought and linking it to early financing, early actions including shock responsive social protection, rapid response, and linking this humanitarian response to long term development work.				National and subnational	Early drought declaration mechanism established and technically strengthened	NCDM	ANDMA, MAIL, WRD, DSIU, NSIA, AMD, MoF, Academia, Research and science entities, UN agencies and end users (CDCs)			MoF-WB Framework, DRR Strategy	2nd working group of MoF-WB Framework
8	Setting up of drought research and management centers in Kabul and 4 (? Or 2: dryland & irrigated areas) provincial Universities.				Kabul, Kandahar, Balkh, Herat, and Nangarhar Universities	Drought research centers established within universities	MAIL and MoHE	ANWERC, UN agencies / Technical organizations		500,000	Dryland Agriculture Policy and action plan	To be initiated as on-budget activity with support from technical organizations and development partners
9	Initiating processes / platforms at all administrative levels for encouraging the participation of development partners and drought at-risk communities, especially women, in the decision making related to drought risk management / implementation of this strategy.				National and subnational	Platforms established to enhance participation of stakeholder and communities	MAIL	ANDMA, NEPA, NSIA, Academia, Research and science entities, UN agencies and end users (CDCs)		100,000	NA	To be initiated as off-budget activity with support from technical organizations and development partners
10	Development of sectoral safety nets / programmes in the IPC 4 areas prone to drought				National and subnational	National sectoral safety net programmes established, enhanced and adopted to the drought context	MAIL	MoLSA, ANDMA, Academia, Research and science entities, UN agencies and end users (CDCs)		100,000,000	MoF-WB Framework, DRR Strategy	To be initiated as on & off budget (off-budget: pilot of sectoral safety net) activity with support from technical organizations and development partners
11	Improve collaboration among scientists, citizen-scientists and other stakeholders to enhance the effectiveness of drought observation networks, monitoring, prediction, information delivery, and applied research and to foster public understanding of and preparedness for drought.				National and subnational	Collaborative approaches established among scientists and other stakeholders	NSIA, AMD, MAIL, WRD	ANDMA, NEPA, Academia, Research and science entities, UN agencies and end users (CDCs)			NA	
12	Strengthen coordination amongst GoIRA and development partners in early actions and rapid response to drought				National and subnational	Context specific drought early actions and rapid response adopted and local resilience capacities improved	ANDMA	Sectoral ministries, Drought research centres, development partners, and end users (CDCs)			Disaster Management Law (Article VIII) and DRR Strategy by ANDMA	To be initiated as off-budget activity with support from technical organizations and development partners

13	Pre-positioning of relief resources for ensuring a timely response				National and subnational	System for prepositioning of drought response established and timely response done during drought events	MAIL	ANDMA, development partners and end users (CDCs)		10,000,000	NA	To be initiated as on-budget activity with support from technical organizations and development partners
Total										111,000,000		

Initial-Actions												
No	Sector & Action	Time of Action			Location of Action	Result(s) of this Action (Pls. specify what this action will result in / lead to regarding management of drought risks)	Responsibility		Estimated Budget		Strategic Linkage (Whether linked to any strategy / policy? If yes which?)	Remarks (whether ongoing / planned? If yes then please specify (1) which programme / project / scheme and (2) whether On / Off Budget?)
		ST (2019-21)	MT (2022-25)	LT (2026-30)			Lead (Pls. specify Dept., Directorate, Ministry / Agency)	Supportive (Pls. specify Dept., Directorate, Ministry / Agency / Development Partners)	AFGHANI (in '000s)	USD		
1	Official endorsement of this strategy and its accompanying operational plan by GoIRA				Kabul	Strategy officially endorsed	MAIL	H.E. President's Office and related Ministries				To be initiated
2	Presidential decree on the institutional arrangements for implementing this strategy				Kabul	Institutional arrangements established	H.E. President's Office	MAIL, MEW, MRRD, ANDMA, AMD, and other ministries, agencies and development partners				To be initiated
3	Special meeting of the SCLWE on operationalizing this drought risk management strategy and agreeing upon initial set of actions as well as actions proposed for the short-term (in operational plan)				Kabul	Drought risk management strategy and its operational plan activated	SCLWE	H.E. President's Office and related Ministries				To be initiated
4	Setting up of the DSIU and its accompanying DTAC (scientific advisory committee for designing 'sectoral work packages' and technical oversight)				Kabul	DSIU and DTAC established	SCLWE	H.E. President's Office and related Ministries		50,000		To be initiated as on-budget
5	Formation of a short-duration (< 6 months) technical committee to analyze and recommend for adoption by GoIRA: (i) types of droughts, (ii) definitions thereof, (iii) formal declaration of drought process at national and sub-national levels, and (iv) appropriate indices, indicators as well as the threshold and trigger levels thereof as per the proposed definitions of droughts.				Kabul	Drought definitions, types, indices, and official declaration process established for Afghanistan	DSIU	H.E. President's Office and related Ministries		10,000	Aligned to: MoF-WB initiated 'water scarcity, food insecurity and famine risks' Framework, NSIA formation of NEWC, Hydromet Roadmap, and AMD Strategic Action Plan	To be initiated as off-budget through technical assistance by development partners

6	Development and finalization of ToRs and 1st year's workplans of the DSIU (including focal points)				Kabul	DSIU work plan ready	DSIU	H.E. President's Office and related Ministries				To be initiated	
7	Establishing the drought early warning sub-committee within the National Early Warning Committee				Kabul	Drought EWS established	NSIA	AMD, ANDMA, MAIL, WRD-MEW, technical organizations, and development partners				Aligned to: MoF-WB initiated 'water scarcity, food insecurity and famine risks' Framework, NSIA formation of NEWC, Hydromet Roadmap, and AMD Strategic Action Plan	To be initiated as on-budget through technical assistance by development partners
8	Commissioning of formative assessments and studies to inform the formulation of detailed operational plan as well as its results framework and monitoring-evaluation plan				Kabul and nation-wide	Formative assessments and studies conducted and drought-risk analysis available for 'sectoral work packages' formulation	DSIU	Sectoral Ministries (MAIL, MEW, MRRD, MoUD) and development partners			1,000,000	Various sectoral strategies, action plans and frameworks (NRM, DLA, Irrigation, Livestock, NCADPP, DRR, A-CCSAP, NAPA, and AMD Strategic Plan)	To be initiated as off-budget through technical assistance by development partners
9	Formulation of a detailed results framework, plan for monitoring, review, evaluation and knowledge management, and a baseline status report for the same				Kabul	Detailed results, M&E and KM framework for the strategy established	DSIU	Sectoral Ministries (MAIL, MEW, MRRD, MoUD) and development partners			100,000		To be initiated as off-budget through technical assistance by development partners
10	Formulation of the 'Drought Pool Fund' and its management mechanism and procedures				Kabul	Assured ringfenced fund for strategy established	Ministry of Finance	H.E. President's Office and related Ministries					To be initiated as on-budget through technical assistance by development partners and private sector
11	Development of first round of 'sectoral work packages' and initiating the implementation of actions proposed for the short-term (in operational plan)				Kabul	'Sectoral work packages' for short-term designed and ready for implementation	DSIU and SCLWE	H.E. President's Office and related Ministries			100,000		To be initiated as on-budget through technical assistance by development partners
12	Widespread publicity, communication and awareness raising of various stakeholders on this strategy				Kabul and nation-wide	All stakeholders including communities informed of the strategy	DSIU	Communication Departments of all Sectoral Ministries and development partners			100,000		To be initiated as off-budget through technical assistance by development partners
Total											1,360,000		

ANNEXURE 1

BACKGROUND PAPER CHARACTERISING DROUGHT IN AFGHANISTAN



Drought has been termed as the “most detrimental of all the natural disasters” by several researchers^{xx}. There are varying estimates of drought impacts for e.g. Carolwicz estimated in 1996 that globally, about one-fifth of the damage caused by natural hazards can be attributed to droughts and the cost of droughts is estimated to be around USD 80 billion per year^{xxi}. According to recent estimates by FAO^{xxii}, 83 percent of all damage and loss caused by drought is in the agriculture sector while drought remains the most harmful disaster for livestock, causing 86 percent of the total damage and loss (by all disasters) in the sector. According to this FAO global report, analysis of 74 disasters in 53 developing countries between 2006 and 2016 indicates that drought caused 30 percent of agricultural loss, which amounts to over USD 29 Billion while the severity of economic impact of drought is growing: between 2005 and 2015, the average annual loss in crop and livestock production in developing countries has skyrocketed from USD 2 billion per year until 2010 to close to USD 8 Billion per year in 2014. However, most estimates of drought impacts are quite conservative, since they often fail to take all the impacts into account. Indirect impacts (like increase in soil-salination, depletion of water quality, degrading of ecosystems, loss of top/fertile soil, drying of river/stream flows, reduced hydro-energy generation, amongst other such) of drought, cascading societal impacts (like long-term health effects, disruptions in human capital formation, worsening of gender stereotypes and gender based exploitation, conflicts over depleting natural resources and at the site of displacements, amongst other such) as well as impacts of localized droughts are not recorded appropriately or systematically by drought monitoring and reporting systems. Further, the slow-onset nature of drought, lack of visible physical damage, blurred temporal boundaries, and wide spatial reach make drought a particularly difficult hazard to assess with precision.

Lack of systematic data collected from drought disasters impede future preparedness, as did the need for effective communication services for the timely delivery of weather and climate information to enable effective decision making for drought management. In spite of the widespread severity of recent drought years, there has been no comprehensive assessment of economic, environmental, or social impacts in Afghanistan and there is also no national database of drought-related impacts. Without more timely and precise estimates of impacts across the multitude of sectors affected by drought, policy and other decision makers have been reluctant to allocate money and resources to mitigation and preparedness.

Drought is a complex natural hazard and its impacts are mainly due to the

interactions of various agro-climatic factors, underlying vulnerabilities of households and ecosystems and several societal as well as governance factors, which underpin the level of societal resilience to drought and thus its exposure to potential impacts. The difficulty of assessing costs and impacts of droughts in Afghanistan is complicated by lack of detailed impact assessment / analytical studies and data gaps in official disaster records as well as the lack of official definition of drought.

Drought impacts are non-structural and spread over a larger geographical area than are damages that result from other natural hazards. Drought impacts are largely “invisible” and therefore difficult to quantify. Agricultural impacts are often unknown until the growing season is over and harvest is complete. Even during the latter stages of the growing season and in the post-harvest season, estimates of the economic impacts of drought may change to reflect changing prices, estimates of harvested hectares or land abandoned, or the percent of crop that may be cut for silage. Finally, as with any hazard, a drought event of today may be of similar intensity and duration as a historical drought event, but the impacts will likely differ markedly because of changes in societal characteristics.

Drought and climate change

Even though historically and currently, Afghanistan is not a high contributor of GHG emissions; analysis of available climate change scenarios for Afghanistan unequivocally suggest that under all climate change scenarios ranging from the ‘optimistic’ (RCP 2.6) to the ‘pessimistic’ (RCP 8.5), Afghanistan is going to be adversely affected. These impacts will be in terms of increasing temperatures^{xxiii}, reducing and erratic precipitation^{xxiv}, reducing soil moisture^{xxv}, higher melting of snowpack / glaciers^{xxvi}, severe water scarcity^{xxvii}, and more hot to very hot days^{xxviii}. This will result in decline in the mean annual moisture index thus adversely impacting productivity of crops, livestock and rangelands as well as increased water stress to permanent crops and natural vegetation. The forthcoming FAO-commissioned study^{xxix} on analysis of climate change on agroecological zones indicates that the only positive development could potentially be the increased number of crop cultivation / growing days in most parts of north-eastern and central Afghanistan due to increased temperature and goes on to further suggest that:

“While moisture limitations will continue (and somewhat worsen) into the future and result in some expansion of the no cropping zone in the south-western region, minor improvements (from no cropping to single cropping or from single cropping to limited double cropping) may materialize due to global warming in the north-eastern, eastern and central regions. When moisture limitations can be overcome with irrigation, the prevailing temperature regime allows for triple cropping in south-western Afghanistan and in pockets of eastern and south-eastern Afghanistan. In most of the central and part of north-eastern region only one sequential or no crop is possible due to limited heat provision. In the north-western, western and south-eastern region dominantly double cropping can be practiced where water is available. With climate change and if water can be supplied, the irrigated multiple cropping potential is expected to increase in all regions due to warming, very distinctly so in the north-eastern, north-western, central and eastern regions.”

Drought and flood - the two main hydro-meteorological disasters in Afghanistan - are slated to be the ones most impacted by climate change in the coming years in Afghanistan. Evidence suggests that the timing, frequency, intensity, scale, impact, and duration of drought is changing and increasing in Afghanistan. This evidence is aligned with the experienced realities at the governance and farm levels (add reference footnote if possible). The NEPA and UNEP developed climate change projections and analysis indicates that, “Overall, the decrease of precipitation during springtime is particularly relevant since this is the period of main plant growth for agricultural production. In addition, this precipitation decrease is projected to take place in the regions with the highest agricultural productivity of Afghanistan (East, North, and Central Highlands). In combination with the overall increase in temperature and the related increase in evapotranspiration across the country, this will most likely negatively impact the hydrological cycle, agricultural productivity, and availability of water resources.”^{xxx} This report, along with the earlier cited NAP and forthcoming FAO study, substantiates the view of MEW and the Kabul River Basin (KRB) Authority officials who recognise the following changes in flood and drought hazard characteristics in the KRB and attribute it to climate change / variability: (i) 15-18 percent reduction in river and canal water flow, (ii) reduction in river water levels, (iii) almost 15-day early winterization and spring onset, (iv) reduction in spring precipitation, and (v) less levels of perma-snow in the high-

lands-upper catchment of Kabul river.

Climate projections suggest that the main negative impact of climate change in Afghanistan in the future will be increased drought risk—with increased flood risk being of secondary concern. Annual droughts in many parts of the country will likely become the norm by 2030, rather than being a temporary or cyclical event. This will mostly be due to higher temperatures leading to higher evapotranspiration and higher crop and livestock water demand. Afghanistan’s complex topography will influence significant local variations in response to global warming, especially precipitation, which are likely to be huge in magnitude and may become highly diverse depending on the specific location.

Increasing evidence^{xxxi} about strong linkages between climate-induced disasters and conflict in ethnically-divided countries and drought-induced displacement provides indications of the potential impact that can be expected. Drought, extreme weather conditions and related impacts has been found to be one of the major drivers of displacement for IDPs residing in Kabul city.^{xxxii} In 2018, drought-induced IDPs (as many as 300,000) exceeded the number of conflict-induced IDPs in the urban fringes of Herat, Badghis and Ghor amongst other provinces.

Exposure of people, livestock, productive assets, sectors, and habitations to drought is also determined by the underlying vulnerabilities of degraded water, land, soil, and natural resources in addition to changing climate. For farmers, climate change results in increased soil evaporation, reduced river flow during most of the season, and less frequent rains. Crop failure levels increase due to water shortages resulting in an increase in uncultivated land and in turn increasing soil erosion and land degradation. Another impact of climate change is that water intensive crop like wheat (Afghanistan’s main staple) becomes less attractive in favour of drought-hardy crops. A recent study by the FSAC in 2016-17 notes that, about 6 percent of communities report both lower rainfall and higher temperatures - that is – roughly, drought conditions. These “drought conditions” were not so severe to reduce wheat yields by themselves, but water for agriculture in Afghanistan depends largely on snowfall and snowmelt, hence localized droughts by themselves are not the only determinants of water levels. Further, the study notes that roughly one fifth of communities reported very low water levels and another

23 percent report low water levels compared to usual, meaning that around 44 percent of communities are subject to water stress. Looking at the level of water reported by communities, it is apparent that access to water is affecting yields, which are significantly lower when water levels are very low (reduction of 77kgs/ jerib compared to sufficient water levels). Livestock – the most water intensive agriculture sector activity – feels the impact of droughts most acutely, with 21 percent of pastoralists in areas with drought conditions reporting their cattle body conditions being worse than last year against 15 percent in non-drought communities, and similar figures for sheep and goats (25 to 18 percent). Around 27 percent respondents reported acute shortage of fodder availability and depleting quality of pastures. The effect in this case is stronger for weather conditions than for water levels overall. Delayed rain, continued conflict and crop pest attack are also major factors interacting with drought and all together contributing to food and nutrition insecurity.

These scenarios and their impacts suggest that if the underlying drought risks are not addressed then it will potentially lead to more frequent, intense and longer-duration drought events resulting in more adverse impacts of droughts at households', systems' and ecosystems' coping and natural regenerative capacities levels, which could be harder to manage.

Framing the issue of drought in Afghanistan: Analysis of causal drivers of drought risks

While an analysis of causal factors is an essential precondition to envisioning durable solutions, issue-framing takes a renewed relevance in the case of drought for which there can “neither be a single definition of drought nor one type of drought that is applicable to all contexts”^{xxxxiii}. Despite decades of scientific research¹⁴ and policy focus¹⁵ around the world, there continue to be varying perspectives on typology, defining, characterizing, and measuring the impacts of drought hazard. For e.g. definitions of drought have evolved since the 1930's from

‘deficient precipitation’ to the latest prevalent and well-accepted ones in the current decade (2010's) of ‘significant deviation from average rainfall resulting in deficient hydrological balance, deficient crop production / yield and severe adverse socio-economic impacts’. Conceptually, this definition assumes that the demands of human activities are in balance or harmony with the availability of water supplies during periods of normal or average precipitation. However, if development demands exceed the supply of water available, then demand will exceed supply even in years of normal precipitation. This skewed hydrological balance - wherein demand / use of water is more than available supply of water - even in “normal” precipitation and production times aggravates the exposure of communities and ecosystems to even ‘slight deviations’ in precipitation; which hence needs to be also taken into consideration with the currently-accepted definitions of drought.

Before framing the issue of drought in Afghanistan, it would be pertinent to first understand drought and its typology. What is drought? There is and cannot be a single all-encompassing definition of drought given the varied perceptions on drought and perspectives of key stakeholders globally. That it is difficult to provide a precise and universally accepted definition of drought¹⁶ is well accepted in discourse and accordingly reflected in literature given the varied impacts, temporal elements and characteristics as well as diverse perspectives coupled with the socio-eco-political dynamics influencing defining and declaring droughts. Drought has been defined in various ways by many actors as per their ideologies, perspectives, disciplines, institutional mandates, and purpose. Careful scrutiny of the various definitions of drought suggests that the definition (and classification) is based on an analysis of: (i) meteorological (rainfall level), (ii) hydrological (surface and sub-surface water level) and (iii) agricultural (area sown and yield level) deviation (negative) from a predetermined normative level (usually long-period average). It is quite apparent that socio-economic drought does not feature in most governments / official definitions of drought. The predominant perception and analysis of drought is interconnected wherein the continuation of the meteorological drought results into hydrological drought which progresses into agricultural drought that in turn progresses to a socio-economic drought and if conditions persist into a famine. Further, drought is often officially classified as early season, mid-season

¹⁴ Researchers since the 1930s (while studying the causality of the “Dust Bowl” drought of the 1930s over the Great Plains in North America) to the 1960s & 70s (wherein PDSI, SPI, NDVI, and such indices were developed to correspond to the four types of droughts) to the present times have studied the typology of drought and various ways of scientifically defining, forecasting, early warning, and measuring the impacts of it.

¹⁵ For example, the North American Drought Monitor, Govt. of India's Drought Manual, the European Drought Observatory, the High-level Meeting on National Drought Policy (HMNDP) and its Official Declaration in 2013, WMO and Global Water Partnership guide on drought indicators.

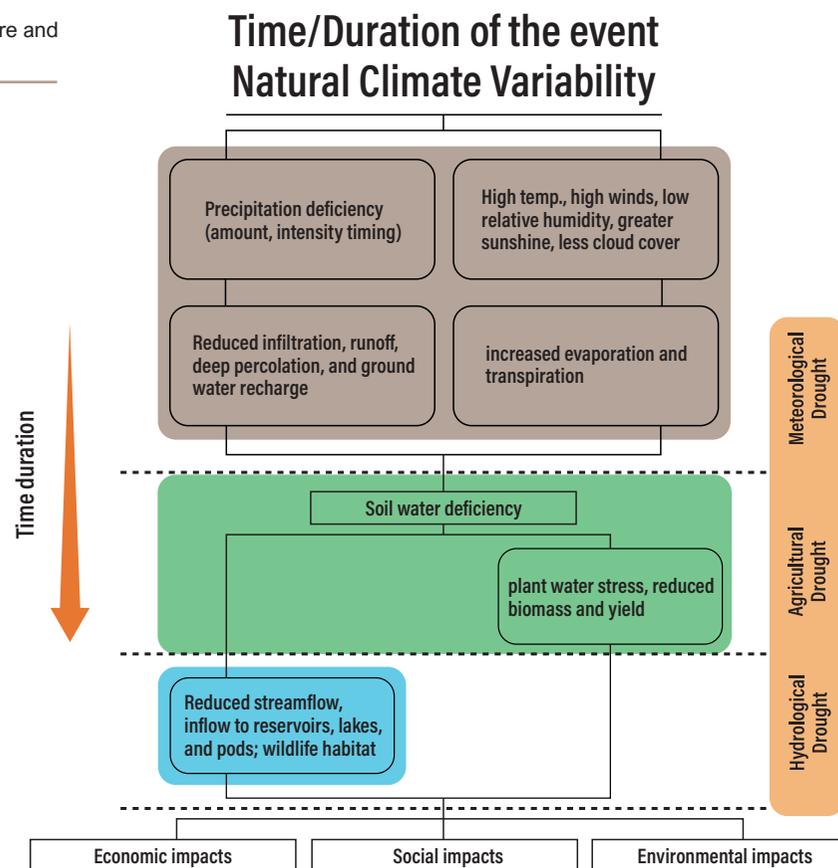
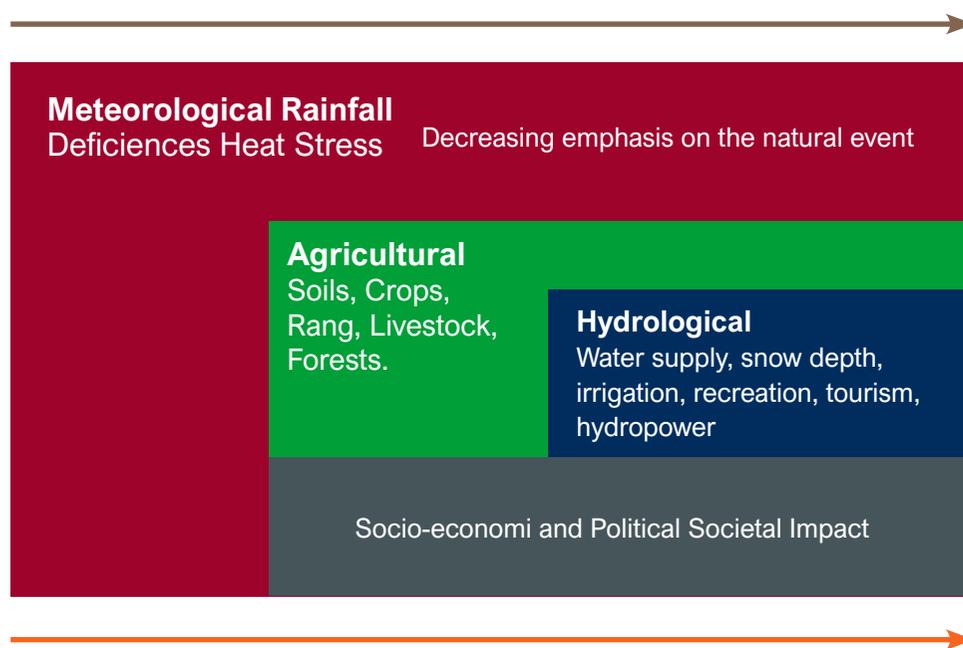
¹⁶ See, for example definition of drought by Palmer in 1965, by Takeuchi in 1974, McMahon and Arenas in 1982, Ben-Zvi in 1987, Ramakrishna et al in 2000, Govt. of Australia Drought Policy in the 1990s and again in 2011/16, SAARC Disaster Management Centre in 2010, Govt. of India 2009/10, and the NDMC USA over the decades

and late season - linked to the progression of the precipitation (meteorological), ground water level (hydrological) and status of agricultural produce (agricultural) -. This is usually computed based on various indices like the aridity anomaly, standardized precipitation indices (SPI), groundwater and surface water supply (hydrological and hydraulic measures), crop-soil moisture, area sown, vegetation and crop yield indices (NDVI).

Typology of drought is varied and based on temporality (permanent, seasonal, contingent, and invisible drought), trigger-characteristics (meteorological, hydrological and agricultural drought), statistical parameters (indices focusing on precipitation, surface and sub-surface water, soil moisture, vegetation, crop yield,

and such), and impact (socio-economic, ecological and environmental drought). It appears that there is still no consensus on the threshold of the deficit (be it then precipitation, soil moisture, groundwater, agricultural produce or socio-economic deprivation) to term a specific situation as drought probably due to the various definitions, typologies and contextual variations. Typically, there are four types of droughts viz. (i) meteorological, (ii) hydrological, (iii) agricultural, and (iv) socio-economic. Further, in any context drought can be either one of these four types or a combination of couple of these four types or in extreme instances all four types at the same time. Recent analyses also point to a fifth type of drought viz. 'flash drought' where the conditions for any one or two types of droughts rapidly develop resulting in drought situation (for e.g. gap of more than one month in

Figure 8: Drought Types and Temporal and Sectoral Progress (adapted from National Drought Mitigation Centre and School of Natural Resources at University of Nebraska-Lincoln, USA)



precipitation in rainfed agriculture system can result in a flash agricultural drought while there may not be a meteorological drought based on the aggregate precipitation of the entire season). Furthermore, since the effects of drought accumulate gradually over a period of time and scientists and policy makers often disagree on the basis / criteria for declaring an end to drought, thus the onset and end of drought are difficult to determine. The below figure 8 (courtesy: National Drought Mitigation Centre and Dr. Donald A. Wilhite, Professor and Director Emeritus of Applied Climate Science in the School of Natural Resources at University of Nebraska-Lincoln, USA) explains the elements of the four types of droughts and the possible temporal and sectoral impacts' progression across the four types of drought:

Unlike most other natural hazards, drought does not have a precise and universally accepted definition. This fact adds to the confusion about whether or not a drought exists and, if it does, its degree of severity. Realistically, definitions of drought must be region (context) and application (or impact) specific. This is one explanation for the fact that several definitions of drought exist. For this reason, the search for a universal definition of drought is of little value. Policy makers are often frustrated by disagreements among scientists on whether or not a drought exists and its degree of severity. This problem is also a function of different drought types (meteorological, agricultural, hydrological, and socioeconomic), each of which reflects a different disciplinary perspective. The characteristics of drought have hindered development of accurate, reliable, and timely estimates of severity and impacts – delaying the formulation of drought preparedness plans. They affect both the way we measure and perceive exposure to drought and our vulnerability to it. Hence, it is advisable to determine the types of drought and define them accordingly as per the national / local context.

Drought - in general as well as in Afghanistan - is a peculiar phenomenon since it is both internal and external to the structure of the society and the social fabric. This is evident from the local practices, imaginaries, culture, cuisine, and societal priorities more so in regions that are classified as 'drought prone' wherein drought is simultaneously the 'structure' and an 'event'. This is consistent with the common conceptualization of drought as a 'event', which is commonly perceived as triggered by 'failure of rains'. Hence, it is important to differentiate between drought 'hazard', drought 'risk' and drought 'disaster'. Drought 'hazard' is the "natural phenomenon", as described by the types and definitions of drought (except for socio-economic drought). Drought hazard (natural phenomenon) is a

normal part of climate, which occurs in most climatic regimes, but its characteristics vary across regions / contexts. Drought per se is not a disaster; and whether drought becomes a disaster or not is dependent upon the extent of impact a drought hazard has on humans, communities, ecosystems, and socio-economic-political systems. A drought hazard turns into a drought disaster when the natural phenomenon interacts with the human, social, political, and economic systems as well as ecosystems. This (drought disaster) happens when the drought hazard interacts, at various scales, with the underlying vulnerabilities and structural deficits in the human-related ecosystems and economic systems. One school of thought also claims that "all disasters are inherently political", which is based on the logic that "although a disaster is initiated by a natural hazard, the impact of this shock (the disaster) is tied to the social and political system in which it occurs"^{xxiv}. This - the socio-political underpinnings of a disaster - is quite pertinent for drought disaster. The extent of impact of drought i.e. drought disaster is dependent on several human, socio-economic, environmental, and political/governance factors as well as the level of 'tolerance' and resilience of those being impacted. Drought risk is a function of the drought hazard, underlying vulnerabilities (household and socio-economic-political), exposure (households, ecosystems, communities, and management systems), and capacities; all of which interact with each other in a complex manner based on the context. Drought risk contains elements of meteorology, climate change, agriculture, natural resources management / ecology, power politics, food security, commodity markets, soil science, hydrology, hydraulics, governance, and management. It could, arguably, be said that drought risks are more complex and layered than those of rapid-onset hazards. Why more complex? Because of the temporal dynamics of the slow-onset, lack of clarity in determining the 'start' and 'end' of the drought, its lingering nature, and spatially extensive scale underpin the lack of sustained attention on the underlying causal factors. Further, cascading impacts of drought in subsequent seasons and years interact with (and often exacerbate) underlying vulnerabilities like - socio-economic deprivations and degradation of land, water, soil, and natural resources. Furthermore, the interactions of impacts of drought with its structural / root causes, including governance deficits, and now changing climate add an additional layer of complexity of drought risks. Analysis of these elements and how these become the causal drivers for a drought hazard in becoming a disaster is thus critical while designing a strategy to manage these risks. Essentially, the challenge is to shift from managing drought as a disaster to managing the risks of drought so that the drought hazard does not become a disaster. Towards this the causal factors and

drivers of drought risks in Afghanistan have been analysed below in the form of immediate, underlying and structural causal factors of drought. The below figure illustrates the indicative hierarchical (levels) of causal factors of drought. It is to be noted here that the causal factors, their hierarchical relationships and interactions are neither exhaustive nor representative. It is to give an idea of what are the various causal factors of drought risk and how they possibly interact / come together to turn the drought hazard into a disaster.

Immediate causal factors: These are a mix of natural and human factors that act as the “tipping factors” triggering drought. These immediate causal factors are: (i) deficiency and/or failure of spring precipitation, snowfall/pack and temperature; (ii) shortage, scarcity, and unavailability of both surface and ground water as well as deficient soil moisture; (iii) reduced crop and livestock production and/or yield; (iv) forecasts and early warnings that are inadequate in terms of its timing, accuracy and contents; (v) lack of sufficient preparatory measures at household, community and government levels; (vi) delayed response actions to minimise the early effects; and (vii) lack of enough reserves of water, food, fodder, and other essentials to tackle the natural “tipping factors”.

Underlying causal factors: These are a mix of mainly human and some natural factors that act as “catalysts” in amplifying the effects of the immediate causal factors as well as heightening the exposure and sensitivity of humans and ecosystems to drought hazard. These underlying causal factors are: (i) unsustainable cultivation and livestock rearing practices that do not take into account the micro as well as meso/macro hydrological balance; (ii) falling domestic wheat and cereal production; (iii) development and governance deficits; (iv) eroded endogenous capacities of households, communities and ecosystems - especially eroded rangelands and depleted forest cover in Afghanistan; (v) regular loss of topsoil and degraded natural resources (due to unsustainable practices and effects of droughts and floods); (vi) desertification at a rapid pace in the southern and south-eastern parts; (vii) eroded coping capacities of households and communities as well as ecosystems in drought-prone areas; (viii) livelihood insecurity and limited alternatives for livelihoods in rural areas creating undue pressures on agriculture and ecosystems; (ix) lack of systematic data and analyses on impacts of past droughts and analyses of changing characteristics and risk profile of drought in recent times in Afghanistan; (x) limited and non-harmonized investments in strengthening systems for forecasting, early warning, communication, and monitoring of drought; (xi) increasing exposure to drought

due to climate change and effects of other hazards (especially floods, fires and avalanches); and (xi) high number of returnees and IDPs causing further stress on natural resources. These factors interact with underlying vulnerabilities at household level in terms of eroded coping capacities due to exposure to frequent shocks and high levels of food nutrition insecurity coupled with poor health and water-sanitation conditions, and depleted income levels and assets.

Structural causal factors: These are primarily human factors that have created conditions “suitable” for the drought hazard “tipping factors” to turn rapidly into a drought disaster by animating (and at times also creating) the underlying factors. These structural causal factors are: (i) ongoing four decades of conflict and instability; (ii) macro-economic and developmental priorities prioritizing urban areas over rural and cultivation of water-intensive crops as well as non-judicious management of water; (iii) risk-blind (or uninformed and at times aggravating) development; (iv) lack of pertinent institutions for drought risk management and related research and extension as well as fractured institutional arrangements for the same (unclear mandates and procedures on drought declaration, no official drought definition, not much coordination in mitigation planning and implementing); (v) drought being perceived as a ‘disaster event to be managed’ rather than addressing the risks and vulnerabilities of it leading to limited policy, strategic prioritization and resource allocation in addressing drought risks; (vi) lack of decentralized decision making on early season drought declaration and risk management; (vii) limited / lack of integrated and/or convergent planning taking into consideration river basins, aquifers, natural resources, agroecological zones, and risks induced by changing climate and other factors across the eight broad agroecological zones and 29 varied livelihood zones with predominant agropastoral livelihoods^{xxxv}; (viii) gender stereotypes, coupled with social and age hierarchies, that not only hinder access and control over resources but also participation in decision making by women; and (ix) societal and cultural acceptance of drought being part of life.

ANNEXURE 2

IMPACTS OF DROUGHTS IN AFGHANISTAN



Drought is a complex natural hazard and its impacts are mainly due to the interactions of various agro-climatic factors, underlying vulnerabilities of households and ecosystems and several societal as well as governance factors, which underpin the level of societal resilience to drought and thus its exposure to potential impacts. Drought impacts are non-structural and spread over a larger geographical area than are damages that result from other natural hazards. Drought impacts are largely “invisible” and therefore difficult to quantify. The current disaster damage-loss MIS in Afghanistan (ANDMA) is nascent and does not capture drought disaster data neither does any agency / platform have this data. The difficulty of assessing costs / impacts of droughts in Afghanistan is thus complicated by lack of detailed impact assessment / analytical studies and data gaps in official disaster records as well as the lack of official definition of drought and the methodological challenges in analysing impacts (sectoral, human, ecosystems, assets, and indirect) of drought. Nevertheless, presented below is an analytical snapshot of impacts of drought as experienced in Afghanistan over past 25 years¹⁷ based on available empirical and ‘experiential’^{xxxvi} evidence of past droughts in the country:

- Droughts have affected 6.5 million people since 2000, during four major events (2000, 2006, 2008 and 2011).^{xxxvii}
- Drought and flood account for significant economic setbacks in Afghanistan- an estimated 334 million USD per year^{xxxviii} with drought accounting for most people affected^{xxxix} (6,510,000 out of total 9,275,327 people affected by natural induced disasters from 1970 to 2012). An extreme drought could cause an estimated US\$3 billion in agricultural losses and lead to severe food shortages across the country while USD 280 Million every year are estimated to be damages in agriculture sector every year due to drought in Afghanistan.^{xi}
- Over 2.7 million people (or 9 per cent of the total population) live in drought hazard zones that are subject to potential losses and about 70 per cent of the reported population has been affected by drought from 1980 to 2008.^{xii}
- According to EM-DAT, the 2000 drought affected 2,580,000 people while drought in 2006 affected 1,900,000 people. In addition, 70 percent of the reported population have been affected by drought from 1980-2008.^{xiii}
- Prolonged droughts have contributed to decreases in production of wheat

(75 percent), rice (85 percent), maize (85 percent), potatoes (50 percent) and various other crops (around 60 percent on average) between 1998 and 2005 as well as a deterioration in the water table, drying up of the Karezes, and degradation in watersheds.^{xliii}

- The 2008 drought necessitated GoIRA to import two million tonnes of cereals which costing about USD 1 billion.^{xliv}
- The 2004 drought caused an aggregate decline of 43 percent in cereal production (around 3.06 million tons) compared to that of the record harvest in 2003.^{xlv} Around 50 to 75 percent of the cropped area across the country experienced failure due to the 2004 drought.^{xlvi}
- The prolonged drought of 1998-2004 that affected 26 provinces resulted in displacements, 42 percent households selling productive assets to cope with drought related shocks, 43 percent households buying water, high loss of grazing land productivity for 83 percent households, 8 to 10 meters drop in groundwater table, drying of drinking water wells in villages in 12 provinces, more than 1 additional day required in collecting water, “bitter-sour” taste and turbid water in available sources, increase in disputes over water, drying of orchards and fall in agricultural production, sharp reduction in local food production and local employment, distress sale of livestock at a ‘mean’ of 22 percent across 14 provinces, high incidence of diseases (respiratory and gastrointestinal diseases, toxicities and infectious diseases including PPR, FMD, Pox or other) in livestock across 26 provinces, drying of 90 percent of springs and Karezes, and outbreak of plant as well as human diseases in 12 provinces.^{xlvii} The inter-ministerial drought impact assessment team’s report also indicated that overall 37 percent of the population (across the 26 affected provinces) would not be able to cover their basic food and non-food needs through the harvest of 2005 while Nimroz (92%), Kandahar (70%), Paktika (60%), Zabul (57%), Kunar (56%), Logar(54%), and Faryab (53%) provinces had over 50 percent of the population that will not being able to meet their basis food neds for the full winter season (of 2005).
- Annual agricultural sector growth fluctuated between negative growth of -22.2 (negative 22.2) percent in 2004 to a growth of 44.6 percent in 2009

¹⁷ In the past 25 years, major droughts occurred in Afghanistan in: (i) 1998-2004 continuous 6 years, (ii) 2008, (iii) 2011, and (iv) 2018; while moderate droughts were reported for: (i) 2006 and (ii) 2014/15. Since, there is no formal process for official declaration of drought or a disaster damage-loss MIS that records droughts, it is thus difficult to accurately determine which year was a “drought year” and which provinces / districts were affected unless there is some assessment / study done. The “drought years” included here are based on available assessments / reports of Government of Afghanistan and Development Partners, hence there could be some information discrepancies and overlaps including double accounting.

when a year of particularly favourable growing conditions followed the drought of 2008. Further, percentage of rainfed wheat production in total production fell down to 8-19 percent consistently in the drought years (2004, 2008, 2011) from around 33 percent in the non-drought years.

- The 1999 to 2004 drought affected millions and forced several (entire) villages to abandon their lands and forcibly move to cities as internally displaced; groundwater levels in Kabul and elsewhere in the basin are still recovering; drought conditions prevailed for almost five years, resulting in the loss of more than 50 percent of the pasture land, affecting approximately 3 million livestock, and necessitating humanitarian assistance for almost 1 million Afghans. Further, there were 30 million sheep/goat and 4 million cattle before the 1999–2004 drought and 16 million sheep/goat and 3.7 million cattle respectively after it.^{xlviii}
- The two decades of conflict and the last 6 years of drought led to uncontrolled cutting of trees, the desiccation of the rangelands in Registan area (an area covering 100,000 square km southern of Kandahar, Helmand and Nimroz Provinces), causing a rise in internal displacement. IDPs in Southern Region are 80% drought-affected while in 2000-2002 the caseload was 450,000 people.^{xlix}
- A joint FAO-WFP crop and food-supply assessment missionⁱ amidst the 1998-2004 drought reported that rainfed crops (wheat and barley) had almost totally failed, except in a few pockets in different regions, while irrigated cereal production was also severely affected by drought, resulting in an estimated reduction of (irrigated) wheat production by some 33 percent in 2000 as compared to 1999. The production of secondary crops (rice, maize, barley) was also estimated to have declined by 53 percent compared to 1999 and 66 percent compared to 1998. The Mission thus estimated the 2000 total cereal production at 1.82 million tonnes - down by 44 percent compared to 1999 and by 53 percent compared to 1998. Livestock offtake and mortality rates, due to starvation and dehydration, averaging at 67 percent were reported to the Mission. 80,000 Kuchi families were estimated to be affected while farmers in general indicated average animal losses of 56 percent resulting in distress and early sale of their slaughter and breeding stocks at lower weights, thus depressing market prices (Afs 200,000-300,000 from the normal Afs 1.5-2.0 million) and lowering their earning potential. Increased number of barren female livestock with an associated 15 to 25 percent reduction in normal lambing/kidding percentage (75 percent) was also reported along with a drop in milk production, including lower peak production, earlier drying with an associated increase of lamb/kid mortality, lower lamb/kid growth rates reducing carcass weight and quality, and poorer ewe / doe body conditions. Increased susceptibility throughout the country to Anthrax was also reported. Lastly, mission also reported an increase in number of joblessness, 'liquidation' of productive and other assets and out-migration to Pakistan as causal labourers.
- The 2008 and 2011 droughts production of wheat fell significantly (about 20-25% YoY). The 2008 drought led to deficiency of 1.2 million tonnes of wheat affecting 17 provinces. It also resulted in damage to rangelands and a falling groundwater table resulting in a reduction of livestock feed, a decrease in livestock numbers and out-migration. These effects were particularly felt in the dry rangelands of south and west Afghanistan. The 2011 drought resulted in more than 2 million people becoming food insecure. This fall in wheat production was underpinned by desertification that is caused by soil erosion due to poor land use practices such as overgrazing and deforestation. Drought conditions combined with poor land practices exacerbate the process of desertification in Afghanistan. Currently, sand dunes are moving on to agricultural land and on to settlements in the north and southwest parts of the country.ⁱⁱ
- The Afghanistan Multi Hazard Risk Assessment done by GFDRR in 2018ⁱⁱⁱ provides: (i) an overview of drought losses (see table below), (ii) the economic losses in absolute numbers as well as in percentages of the total capital stock (see subsequent table below), (iii) modelled drought impacts on agriculture sector and populace (see graph below), and (iv) current and projected impact of drought on agriculture sector and population (see map below):

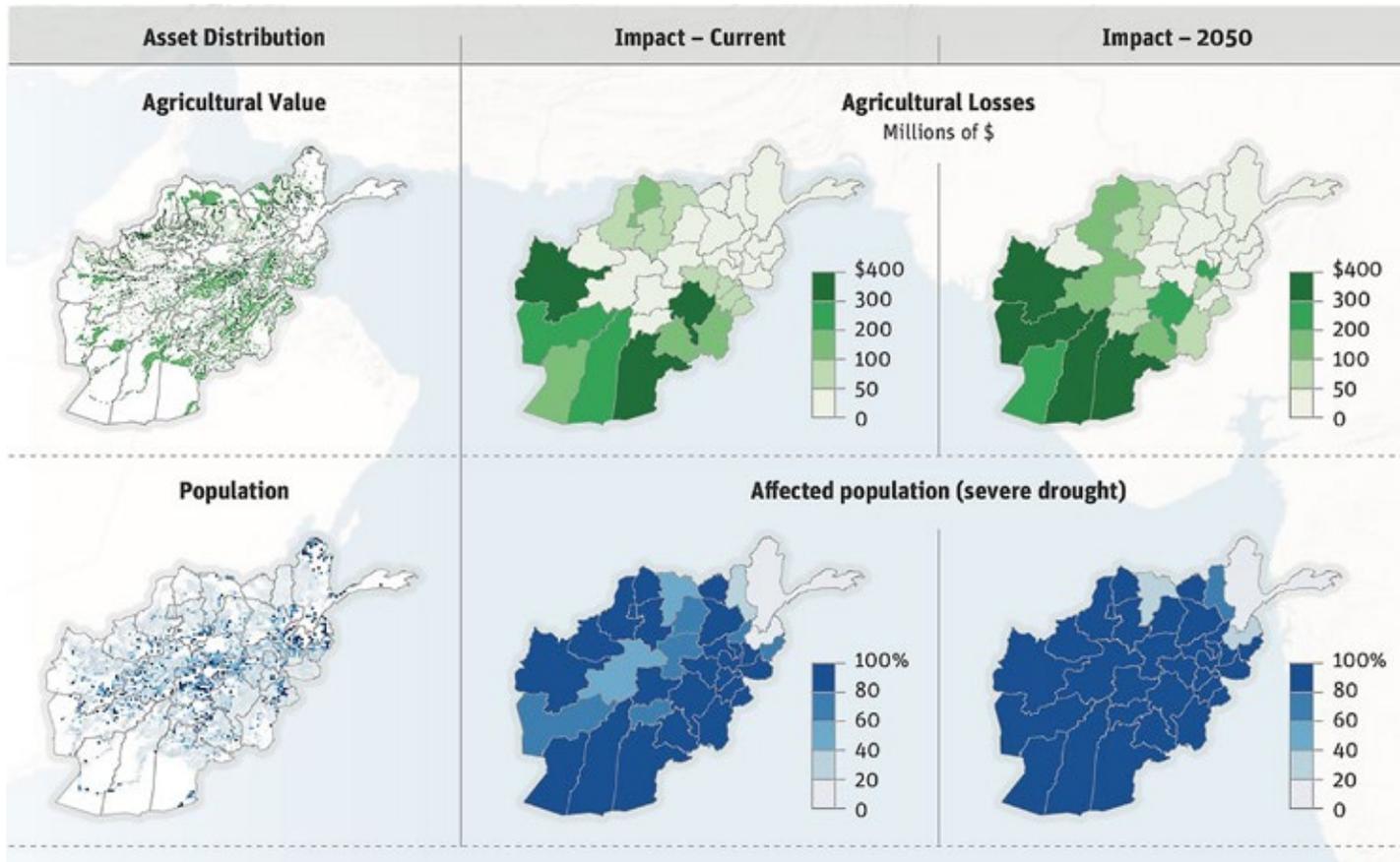
TABLE 2: OVERVIEW OF REPORTED DROUGHTS AND LOSSES IN AFGHANISTAN

Year	Provinces affected	Number of people affected	Economic impact (1,000 US dollar)	Source
1969		48,000	200	EM-OAT database
1971-1973	Central,north-west,north-east,west			EM-OAT database
2000-2002	Kandahar, Helmand, Nimroz, Zabul, Uruzgan, Herat, Farah, Badghis, Paktia, Khost,Ghazni, Baghlan,Kunduz, Takhar, Badakhshan	2,580,000	50	EM-OAT database
2006		1,900,000		EM-OAT database
2008	Kunduz, Balkh, Faryab, Badghis	280,000		EM-OAT database
2011	Balkh,Samangan, Takhar,Sraipul, Heart, Badghis, Faryab,Jowzjan, Baghlan, Kun-duz, Badakhshan, Bamiyan, Oaikundi, Ghor	1,750,000	142,000	EM-OAT database
Jan 2012	Ghor	714		RAF
May-Jun 2012	Kandahar	1,512		RAF
Jul 2013	Ghor	104,000		HUMRES 2016
Oct 2013-Jun 2014	Badghis, Ghor,Hirat	7,468		RAF
Nov 2014-Feb 2015	Badghis, Hirat	623		RAF

Frequency of Drought (Return period)	10	20	50	100	250	500	1,000	AAL
Million USD	2,510	2,725	2,974	3,125	3,261	3,352	3,432	279
Percentage of the total capital stock	5.56%	6.04%	6.59%	6.93%	7.23%	7.43%	7.61%	0.62%

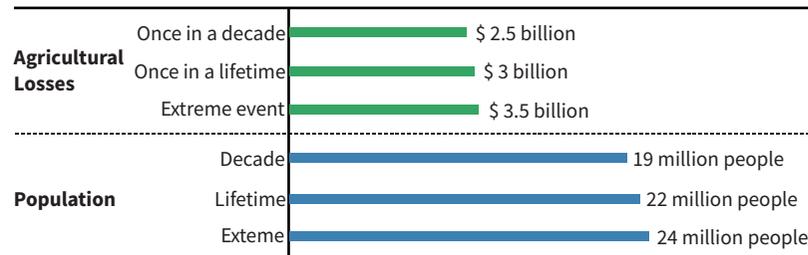
Table 3: Economic Losses due to drought in absolute numbers and in percentages of the total capital stock

Figure 9: Modelled Drought impacts on Agriculture and Population



Modeled Drought Impacts

Reference Situation (2010)



Graph 1: Modelled Drought impacts on Agriculture and Population

Snapshot of 2018-drought impacts in Afghanistan

This snapshot of impacts of the 2018-drought in Afghanistan. The data-information for this 2018-drought impacts is based on the: (i) 2019 Humanitarian Needs Overview developed by UNHCT in November 2018, (ii) Afghanistan GIEWS (Global Information Early Warning System on food and agriculture, FAO) of March 2019, (iii) FAO, Rapid Assessment of the 2018 Winter Dry Spell in Afghanistan, March 2018, (iv) pre and post-harvest assessment done by MAIL in 2018, (v) IPC (Integrated Phase Classification) analysis of September 2018, and (vi) Humanitarian Response Plan developed by UNHCT in 2018 & 2019.

- The drought of 2018 affected more than two-thirds of Afghanistan (22 out of total 34 provinces) with around 10.5 million people being most severely affected (of the total 17 million in these 22 provinces).
- 5 million people needed immediate life-saving assistance in these 22 provinces.
- This drought caused several problems to already impoverished communities, reducing their incomes by half, exposing them to additional health risks and causing households to engage in negative coping mechanisms.
- As per the Integrated Food Security Phase Classification (IPC) analysis of September 2018, 13.5 million people were facing “Crisis” or worse levels of food insecurity (Phase 3 & 4) of which 9.8 million people (43.6 percent of the rural population) were estimated to be in “Food Crisis” (IPC Phase 3) while 3.6 million were facing “Food Emergency” levels (IPC Phase 4) nationwide. This was 6 million more than 2017.
- This analysis further noted that food security situation was expected to deteriorate even further in the coming months (October 2018 to February 2019), which is yet to be ascertained.
- Agricultural activities carried out during the winter planting season (December 2017 - February 2018) were amongst the hardest hit (60–70 percent of rainfed wheat production areas suffered damages) leading to lack of regular access to food, loss of livelihood and assets, forced migration, and the adoption of negative coping strategies, e.g. distress selling of livestock. The wheat production estimate indicates a 16 percent reduction from the previous year and a decline of 25 percent compared to the five-year average (see accompanying table and graph below). The cereal import requirements (mainly wheat) in the 2018/19 marketing year (July / June) are forecast at 3.4 million tonnes, 15 percent higher than in the previous year and over 35 percent above the five-year average.
- Drought has significantly affected crop production, fodder, local pastures and the income of agricultural labourers. The Agriculture Prospect Report of MAIL indicates a six percent reduction in production from irrigated land and 71 percent reduction in production from rain-fed land.
- Across the country, farming families have reportedly: (i) depleted their assets – distress selling their livestock (often at a loss of 20-30 per cent) in order to meet their basic needs before condition of their animals completely deteriorates; (ii) reducing their planting areas (by up to 66 per cent in case of rain-fed wheat) in an effort to conserve water and (iii) 46 and consuming the next planting season’s seeds as a result of crop failure (92 per cent of farmers recently reported they had insufficient or no seeds for the winter planting season).
- According to 2018 Opium Survey (November 2018), the 2018 total area under opium poppy cultivation is estimated at 263,000 hectares. Although this figure shows a decrease of 20 percent compared to the previous year, attributed mostly to drought, the 2018 area under opium poppy cultivation remains at high levels.
- Between June and August 2018 alone, 263,000 people were displaced within Badghis and Herat provinces, resulting in the emergence of 19 vast and sprawling informal settlements; which contributed to the total number of displaced by drought (around 300,000) is more than the number of displaced by conflict.
- The impact of the drought on WASH and health has been similarly dire. With water levels across the country dropping by 62 percent since the beginning of the year, aqueducts have dried-up, meaning that there are progressively fewer protected water sources available, forcing households to rely on

Graph 2: Drought and wheat production in Afghanistan

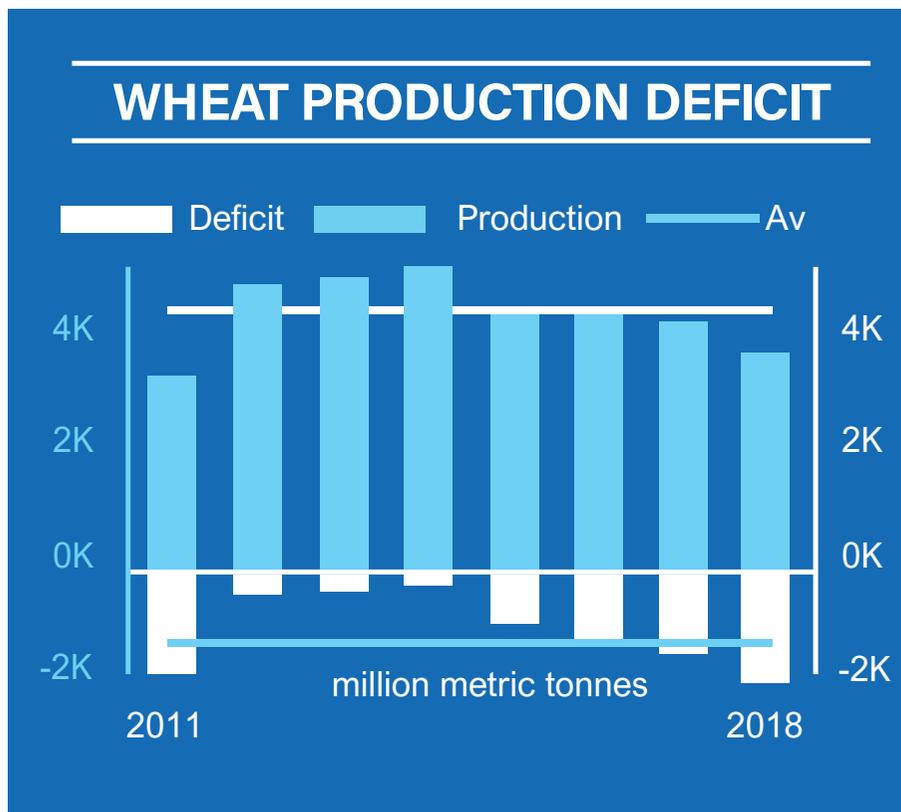


Table 4: Drought and Cereal production in 2018 in Afghanistan

Afghanistan

Cereal Production

	2013 - 2017 average	2017	2018 estimate	change 2018/ 2017
	000 tonnes			percent
Wheat	4809	4280	3613	-15.6
Rice (paddy)	643	505	526	4.1
Barley	367	95	57	-40.0
Others	321	315	310	-1.6
Total	6141	5195	4506	-13.3

Note: percentage change calculated from unrounded data.

Source: FAO/GIEWS Country Cereal Balance Sheet.

unsafe water sources, potentially exposing them to illness. 49 Kills carried out across 10 provinces in April 2018, where more than 25 percent of water sources had either dried-up or were in the process of doing so, revealed that in 73 percent of the communities, members faced notably worsened health conditions as a result of the drought. Furthermore, 69 per cent of the communities reported members receiving treatment for diarrhoea, and 78 percent for mosquito-borne diseases.

- Drought has also exacerbated the humanitarian needs of children. Rates of child marriage in Badghis province are 13 percent higher than the national average, while cases of child labour, child abandonment, and child-selling have all been reported in recent months as families have resorted to

increasingly risky measures to survive severe financial hardship. Child health indicators in drought-affected areas and among drought-affected people are similarly worrisome. A rapid nutrition survey conducted in Badghis province in July found that global acute malnutrition (GAM) and severe acute malnutrition (SAM) rates now exceed emergency thresholds at 19.7 percent and 5.7 percent respectively, while poor access to health services in areas of origin has contributed to high rates of children under two missing out on vaccinations in Badghis (51 percent) and Ghor (26 percent) provinces, compared to the national average of 18.3 percent.

- A qualitative assessment on gender and drought by WFP during the 2018 drought learned that as men lose their earning capacity due to crop failure

or lack of agricultural wage labour, they feel disenfranchised and thus this could lead to an increase in gender-based violence within a drought affected household. It also reported that women and girls were having to travel farther from home to collect water and cooking fuel, this exposing themselves to possible harm. Overall 61 percent of the households indicated that the workload of the women had increased as a result of the drought. Nearly half of all households (46 percent) reported that the drought had caused increased tensions within their family. These increased tensions could result in increases in gender-based violence in these households.

***Please, note that some** of the above data / information is based on qualitative assessments and estimations of potential impacts in 2-4 months after the surveys. Further, the impacts on energy sector, provincial and national GDP, household incomes, livestock mortality, ecosystems (including rangelands, groundwater, forests), soil erosion, and such have not been estimated / or available.*



Drought-affected rangeland in Kandahar, Afghanistan

ANNEXURE 3

DROUGHT MANAGEMENT PROGRAMMES BY GOIRA



Drought management programmes have been implemented mainly by MAIL, MEW and MRRD as well as several national / international organizations in Afghanistan. For instance, Agriculture Production and Productivity Program (APP) by MAIL focused on sustainably increasing the production and productivity of Afghanistan's farmers and herders, introducing drought-tolerant seed varieties and crops; National Comprehensive Agricultural Development Priority Programme (NCADPP) by MAIL focuses on addressing the institutional and investment needs for strengthening the agriculture sector with a focus on creating an enabling environment for farmers to produce surplus, increase on and off-farm employment and generate income through increased exports; Irrigation Expansion, Rehabilitation, and Modernization Sub-Program (IERM), Irrigation Rehabilitation and Development Programme (IRDP) and the National Irrigation Programme (NIP) both by MEW focus on expansion of water harvesting capacity, rehabilitation of water delivery infrastructure, modernization of irrigation infrastructure, rainwater harvesting, strengthening complementary and supplementary irrigation, and modernization of on-farm water usage; which thereby is to contribute towards self-sufficiency in wheat; Natural Resource Surveillance, Planning, and Regulation Sub-Program by MAIL emphasizes establishing an information source including databases, maps, land-use classification, and other information for natural resource data; Protection and Conservation Sub-Program by MAIL includes plans for forest rehabilitation, rangeland rehabilitation, watershed development, and information dissemination and awareness raising campaigns regarding natural resource protection and conservation laws and regulations; Soil and Water Conservation (SWC) Programme by MAIL established guidelines for SWC measures and develops a sustainable land use system for critical watersheds; Institutional Training of departments and agencies mandated for drought management; Rural Development schemes, Citizens Charter and the Regional Programme of MRRD focus on construction of check dams for irrigation and livestock, rainwater harvesting, soil-water conservation, karezes, rural livelihoods, inclusion, and strengthening local governance. All these various programmes, projects and schemes are individually addressing the various risks of drought across parts of Afghanistan, which is definitely useful, however these have been implemented in varying time periods in varying provinces and districts and have not been underpinned by broader landscape management approach whereby the hydrological balance and landcover/use is taken into consideration for effective land-water management thus resulting in fragmented changes in addressing the drought risks.



Drought-affected herder in Ghor, Afghanistan

END NOTES

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- xvi The ‘Three Pillars’ for drought risk management are: (1) Drought monitoring and Early Warning Systems: Declaring a drought too late can have a devastating impact on lives and livelihoods. Yet when you declare a drought it can often be very subjective and highly political. Early Warning System (EWS) would guide affected countries by providing timely information that they can use to reduce risks and to better prepare for an effective response. (2) Vulnerability and risk assessment: No amount of early warning will work without action to protect the most vulnerable. Some people and some systems are more vulnerable to drought as a result of social, economic, and environmental factors. It is important to combine better forecasts with detailed knowledge on how landscapes and societies respond to a lack of rain and turn that knowledge into early intervention. (3) Drought risk mitigation measures: Proactive drought risk management could save lives and the livelihoods of millions of people. Further information on these pillars and wide range of examples is available at: <http://www.droughtmanagement.info/pillars/>
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