



APRIL 2021

CLIMATE CHANGE IMPACTS ON HEALTH AND LIVELIHOODS: AFGHANISTAN ASSESSMENT

ACKNOWLEDGEMENT

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The authors would like to thank staff from the Afghanistan Red Crescent and Technical Advisors at IFRC Asia Pacific Regional Office, and IFRC Afghanistan Country Delegation for their generous time and input into the assessment.

The authors would also like to thank the following people for their involvement in the conception, facilitation and management of the study:

Fleur Monasso, Red Cross Red Crescent Climate Centre; **Meghan Bailey**, Red Cross Red Crescent Climate Centre; **John Fleming**, IFRC; **Sanna Salmela-Eckstein**, IFRC; **Dr Abdul Khalid Amini**, IFRC; **Bettina Koele**, Red Cross Red Crescent Climate Centre.

This guide was designed by Eszter Sarody, and copy-edited by Sarah Tempest.

The authors also wish to thank the Finnish Red Cross, the Ministry for Foreign Affairs of Finland, and the IFRC for their financial contribution to this assessment.

April 2021.

The views in this report are those of the authors alone and not necessarily the Red Cross Red Crescent Climate Centre, the IFRC, ICRC or any National Society.

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EXECUTIVE SUMMARY

The Islamic Republic of Afghanistan is landlocked between South and Central Asia. Afghanistan has a continental climate, with landscapes ranging from dry, hot desert in the south to high mountainous regions in the north. The country is already witnessing changes in climate. Notably, the strong warming trend will continue, with extreme increases of temperatures (2–3°C hotter annually) being felt by 2050 (certain). The higher temperatures – especially in spring and summer – are likely to lead to rapid spring snowmelt, increasing the risk of flash floods and landslides in the mountainous regions. Changing rainfall patterns, notably the significant decrease in spring rain in the food basket regions (north, central and eastern regions) and drying in the already arid south are already being experienced, and drought is likely to be a regular phenomenon by 2030 (highly likely). All across the country the risk is high.

In a country where 54 per cent of the population lives below the poverty line and 61 per cent are directly or indirectly involved in agriculture (cash crops, farming, horticulture and livestock) (Asian Development Bank 2017), climate shocks directly influence rural livelihoods and well-being. Among the world's poorest countries, over half (52 per cent) of its people live in multidimensional poverty and one-third are consistently food insecure (UNDP 2020). Severe droughts in recent years have exposed the interlinkages between climate, the national economy, conflict and migration in the country. Although many challenges compete for priority in Afghanistan, the Government recognizes that climate hazards “have the potential to seriously disrupt the foundation of the country's economy, stability, and food security” (Islamic Republic of Afghanistan 2015). Climate change has the potential to trigger a negative feedback loop between livelihoods and health, as a loss in livelihoods will negatively impact people's ability to afford healthcare.

At the same time, the impacts of climate change on health (in particular, heat-stress, malnutrition, vector-borne diseases, waterborne diseases and mental health issues) will reduce people's ability to work and earn a livelihood. Water insecurity is a major concern in the already arid country, which may interact with the increased contamination of water and risk of waterborne diseases, especially Cholera. Climate change will negatively affect both the quantity and quality of water supplies, so water management is critically important. Afghanistan's human development indicators are low but improving slowly: a little over one-third (36 per cent) of the people have access to safe drinking water and about 41 per cent to improved sanitation services (UNDP 2020). Migration and displacement are already high due to the dual pressures of conflict and climatic stressors. Post-traumatic stress disorder (PTSD) and mental health issues also already pose a considerable burden from years of conflict and violence, which may be compounded by the stresses of further displacement and loss of livelihoods. As climate change increases the rural–urban divide and puts additional stressors on those living in poverty and in rural areas, healthcare disparities in the country are likely to rise as medical services are increasingly in demand. There are strong links between how climate change will impact sexual and reproductive

health rights, such as the potential increase in child marriages and earlier births due to the lower food intake of women and girls who, on average, are already more malnourished than men. Heatwaves, prolonged droughts, increased flooding and the consequential lower food production and water insecurity are already real threats for pregnant women and lactating mothers, also putting their babies in danger.

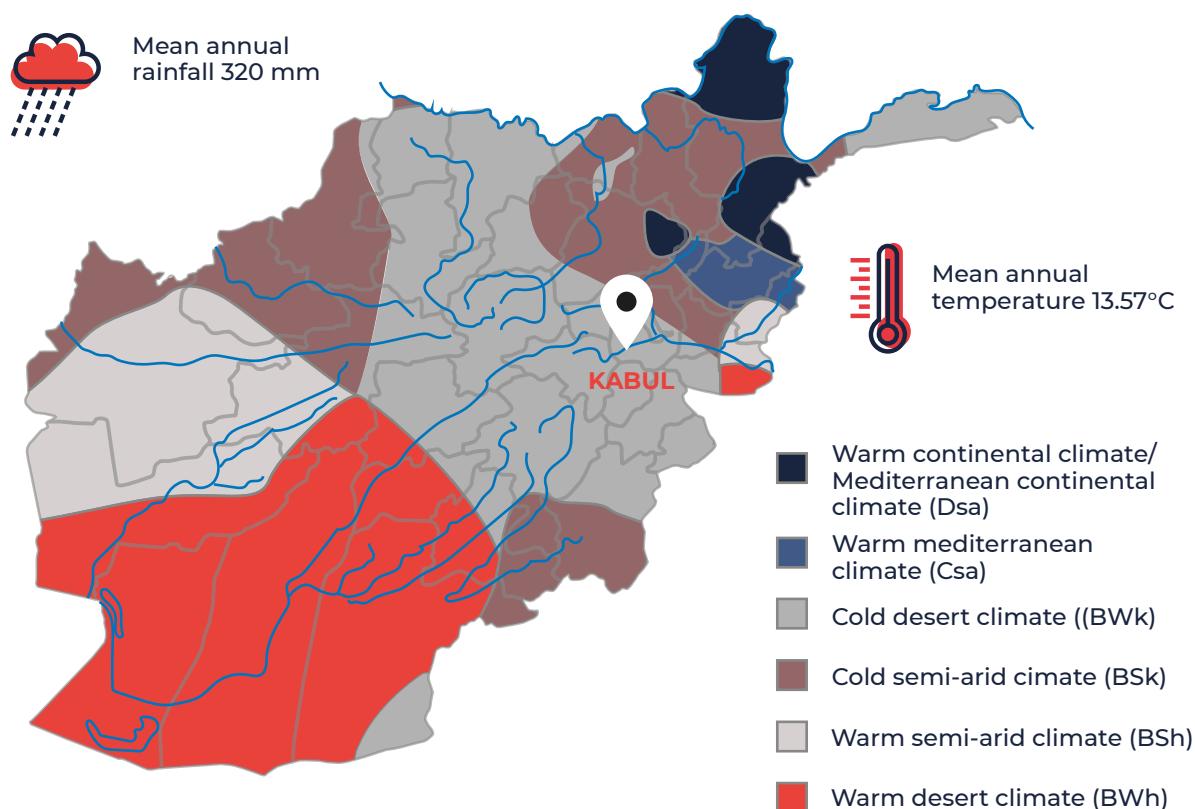
The urgency to act is clear. The purpose of the report is to act as a reference document on the likely impacts – direct and indirect – of the climate crisis on the wellbeing of people in terms of their health and livelihoods. The intention is that this report can act as a springboard for planning and implementing activities and programmes focused on climate action and adaptation. Some recommendations and opportunities for action have been offered, however, these should be considered as only a starting point to further complement and expand existing programmes and projects. Cross-sector and widespread collaboration between National Societies, government agencies and services, the private sector, NGOs, civil societies and our communities is key as no one organization alone can tackle the increased risks posed by climate change nor alleviate the exacerbated risks of vulnerable populations. Together, acting now, with the evidence at hand, it is possible to avert the most dire consequences of the climate crisis.

1. CLIMATE

1.1. GENERAL CLIMATE

The climate of landlocked Afghanistan is broadly classified as desert or desert steppe. Within this classification there are five main agro-climatic zones linked with the country's position in the Hindu Kush mountains (Aich *et al.* 2017). The **north-western region** of the Hindu Kush is predominantly covered with **mountains** (75 per cent), and 7.5 per cent of this region is permanently frozen. The region has the highest elevation in the country, the lowest average temperatures, and receives the most annual precipitation (745mm on average annually) (*ibid.*). In the **north** lie the **plains** – the country's food basket (*ibid.*). The climate here is of moderate temperatures with rainfall around 311mm per year (*ibid.*). The **Central** and **Eastern Highlands** are both rangelands, with above 330mm of annual precipitation, but the centre is the second coolest region of the country with mean annual temperatures around 5C while the East is much warmer with average annual temperatures of 14.7°C. The eastern region

Figure 1. Climatic Map of Afghanistan



is also the only part of the country that is touched by air masses of the Indian monsoon in the summer. Finally, the **Southern Plateau** is the country's largest region and is mainly arid with very little annual precipitation, frequent dust storms and a mean annual temperature of 23.3°C (Aich *et al.* 2017).

Table 1. Seasonal calendar

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
			Spring rainfall								Winter rainfall

1.2. CLIMATE CHANGE TRENDS

OBSERVED CHANGES	CLIMATE PROJECTIONS
TEMPERATURE <p>Overall, there has been a strong warming trend observed across Afghanistan, which has increased the mean annual temperature by 1.8°C. The warming trend is even more pronounced in the south with an increase as high as 2.4°C. The Hindu Kush region, however, is showing warming of 1°C, while the lowest rise is observed in the east (0.6°C) (NEPA 2017).</p>	TEMPERATURE <p>Temperatures will continue to rise significantly. In high emissions scenarios, the whole country may experience extreme warming of 2–3°C until 2050, with further average warming of up to 7°C by 2100 (NEPA 2015; NEPA and UNEP 2016). Greater temperature increases are expected at higher altitudes (Central Highlands and Hindu Kush) than the lowlands, and the warming will be most rapid during spring and summer (Savage <i>et al.</i> 2009; NEPA 2015; NEPA and UNEP 2016). As a result, the number of days and nights that are considered ‘hot’ in the current climate, especially during the summer months, is projected to increase significantly (Savage <i>et al.</i> 2009).</p>

OBSERVED CHANGES	CLIMATE PROJECTIONS
RAINFALL Total annual rainfall has not changed significantly in Afghanistan. However, the spring rainfall (March–May) has decreased by almost one-third, with the strongest decrease in the Central Highlands. Winter rainfall (November–January), however, has increased in most parts of the country, though the regional trend and the amount of increase for winter rainfall are not significant (NEPA and UNEP 2016; NEPA 2017).	RAINFALL There are seasonal and regional differences in projected trends of rainfall. By 2050, spring rainfall (March–May) is projected to decrease significantly (5–10 per cent), which will be most pronounced in the north, the Central and Eastern Highlands, and the eastern part of the southern regions (collectively known as the ‘food bowl’ regions) (NEPA, 2015; NEPA and UNEP, 2016). Winter rainfall (November–January), which largely falls as snow, is predicted to decrease in most parts of the country apart from the north-western mountainous Hindu Kush region where winter rainfall will increase by 10 per cent (<i>ibid.</i>). For the arid south of the country, winters are expected to be significantly drier (Savage <i>et al.</i> 2009).
EXTREME EVENTS All 34 provinces of Afghanistan experience one or more climate-related extremes, including flooding, landslides, drought, and extreme heat and freezing conditions (Savage <i>et al.</i> 2009). During the past decades, more frequent and intense flooding, landslides and other rainfall-related hazards have been reported. It appears this increase is linked to rising temperatures (leading to earlier spring snowmelt) and drought conditions (leading to harder, impermeable soils) (likely), rather than an increase in heavy rainfall events (no evidence) (NEPA and UNEP 2016; NEPA 2017).	EXTREME EVENTS The projected increase in heavy/extreme rainfall is uncertain. Higher temperatures (certain) can lead to rapid spring snowmelt, which is likely to exacerbate the risks of flooding and landslides (Savage <i>et al.</i> 2009) as well as heatwaves. Drought is likely to be a regular phenomenon by 2030 , rather than as a temporary or cyclical event (Savage <i>et al.</i> 2009).

1.3. CLIMATIC VARIABILITY AND EXTREME WEATHER

Considerable variation in temperature and rainfall exists between the regions of Afghanistan, but what is clear is that: 1) Afghanistan has experienced 'extraordinarily strong' warming trends (NEPA 2017); and 2) the decrease in spring rainfall – which impacts rainfed agriculture the most – is especially prevalent in the food bowl regions: the east, Central Highlands and the north (NEPA 2017). Afghanistan feels the effect of the El Niño Southern Oscillation (ENSO), which typically brings warmer temperatures to the country and increased rain or snowfall, particularly in the north and north-eastern parts of the country (OCHA 2019).

“This kind of drought was never there in the last so many centuries, according to our history. We've never seen such intensive droughts.” (KI 4)

Afghanistan regularly experiences landslides, floods and droughts. Notably, droughts are a widespread and severe phenomena in the country, with important impacts on food security, water resources and sanitation. Afghanistan has experienced prolonged (2–3-year) droughts in approximately 15-year cycles (NEPA 2017). For instance, the period from 1998–2005/2006 saw the longest and most severe drought in the country's records. Consecutive and longer duration droughts often result in harder, impermeable soils which can lead to flash floods when there are spells of heavy rain.

Flooding and landslides are also common throughout the country. However, until recently, little was known about the phenomena – the risk and impact was highlighted in 2005 and 2006 when severe floods displaced thousands of people (Hagen and Teufert 2009). There is a lack of accurate flood maps for the country. It takes a long time for flooding events to be reported and a response to be mounted, increasing both the risk and impact of floods. In the mountainous areas, rainfall can also cause devastating landslides.

Finally, heatwaves are common and are likely to increase in length as a result of climate change. Heatwaves occur particularly during the summer months and in the low-lying and arid regions of the south and north (Aich *et al.* 2017).

SUMMARY: PAST CLIMATE TRENDS AND FUTURE CLIMATE PROJECTIONS

The strong warming trend will continue, with extreme increases in temperature (2–3°C hotter, on average, annually) by 2050. The higher temperatures – especially in spring and summer – are likely to lead to rapid spring snowmelt, increasing the risk of flash floods and landslides in the mountainous regions. Temperatures in the cities could soar as a result of the urban heat island effect. Changing rainfall patterns, notably the significant decrease in spring rain in the food basket regions (north, central and eastern regions) and drying in the already arid south are already being experienced; and drought is likely to be a regular phenomenon by 2030. All across the country the risk is high.

RECOMMENDATIONS

1. Engage with climate scientists and government to obtain good and up to date flood and landslide maps.
2. Share flood and landslide maps with the communities at risk.
3. Reach communities with seasonal forecasts available from IFRC–IRI map rooms as well as forecasts related to seasons, agriculture and other parameters.
4. Collaborate with the Afghanistan Meteorological Department which issues alerts on floods, landslides, avalanches, droughts, and heat- and cold waves (GFDRR and World Bank 2018).

2. MOST AT-RISK POPULATIONS

2.1 FARMERS

Those who depend on subsistence farming for their food source and livelihoods are often extremely poor. Their direct dependence on climate-sensitive natural resources for food crops, livestock and water resources makes them a highly vulnerable group to changes in the climate (WFP 2017). Farmers have little diversification of income and few social safety nets (NAPA 2009), placing them at even higher risk. Notably, however, the Kuchis who are nomadic and highly dependent on livestock, have been able to successfully adapt to climatic changes due to their mobile lifestyle. However, as climate change intensifies and urbanization increases, these temporary protections are likely to change (Savage *et al.* 2009).

2.2 WOMEN

The majority (61 per cent) of illiterate people in the country are women. Women in the southern, mostly Pashtun (ethnic group) belt (where droughts are projected to worsen) have especially low literacy rates because of high cultural barriers (UNDP 2020). Parents often do not want girls to be taught by male teachers and so do not send girls to school (UNDP 2020). Reaching women and girls to help them become aware and knowledgeable about weather forecasts and climate projections is difficult because women are still largely excluded from public, political and economic life. The majority (85 per cent) of women of working age are unemployed and heavily reliant on their families, mainly the male members, for support. This is twice the rate of dependence of their male counterparts on families for economic support (WFP 2017). There is cultural pressure to have more sons to ensure there are an adequate number of breadwinners for the family (UNDP 2020). Over half of the women, and three-quarters among poorer families, give birth to their children at home without skilled birth attendants (UNDP 2020). Women, especially in female-headed households, are more food insecure than men and often take to begging as a coping mechanism (UNDP 2020). Women thus have little economic security and hardly any decision-making power to reduce their vulnerability to shocks and stresses. Girls are often sold into marriages during periods of climatic instability (e.g., drought) so that their families can afford to eat (WFP 2017).

“Relatively little knowledge is available about rural women’s perspectives on livelihoods due to cultural barriers and inaccessibility.” (KI 2, 4, 8)



Drought and conflict are considered the main drivers of migration.” (KI 2)

2.3 CHILDREN

Children have high levels of malnutrition, with 25 per cent being underweight and 41 per cent experiencing stunting (UNDP 2020). The 2011 drought left 100,000 children malnourished (World Bank and Asian Development Bank 2020). As climate change affects crop yields, children – especially the already vulnerable among poorer families – will have even less to eat. Children also contribute to household responsibilities like the collection of firewood and assisting in livestock rearing (NAPA 2009, p. 74). Their work gets affected with climate change, for example, when a decrease in trees and flora requires them to walk longer distances to bring firewood.

2.4 PERSONS WITH DISABILITIES

Nearly 3 per cent of the population, predominantly living in rural and informal urban settlements, have a range of severe disabilities as a result of decades of conflict. The main categories of disability are physical (37 per cent), sensory (26 per cent) and multiple disabilities (46 per cent) (WHO EMRO n.d.).

2.5 PASTORALIST POPULATIONS

The majority of pastoralist Kuchis are living in poverty (53.8 per cent) (NEPA 2017). They are a nomadic people (comprising 5.2 per cent of the population), who have traditionally been dependent on animal husbandry for their livelihoods. While the mobile lifestyle of Kuchi pastoralists has helped them adapt to the recent severe droughts, the loss of grassland and livestock have catalyzed rural–urban migration of Kuchi people (Savage *et al.* 2009). In the urban context, Kuchis are amongst the poorest and most vulnerable people (WFP 2017).

2.6 INTERNALLY DISPLACED PERSONS (IDPs)

The long-drawn conflict and loss of livelihoods, due to both the rapid and slow onset of disasters, have led to huge movements of people within the country and externally to other countries (Přivara and Přívarová 2019). There are about 1.3 million internally displaced persons, according to one estimate (Asian Development Bank 2017). Another estimate (UNDP 2020) is that 200,000–300,000 people migrated every year in 2007–2015. In 2016 alone, 635,000 people were displaced internally while one million Afghan refugees returned from neighbouring countries (Asian Development Bank 2017). Returning refugees settle down in informal settlements and camps, often in urban areas like Kabul and Jalalabad, putting pressure on the availability of livelihoods and access to basic services (Asian Development Bank 2017; UNDP 2020) and leading to the growth of illegal slums and higher poverty levels (Přivara and Přívarová 2019).



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SUMMARY: MOST AT-RISK POPULATIONS

After decades of instability and conflict, some vulnerable groups will be put at even greater risk by climate change. Women from ethnic groups, such as the Pashtun, are often excluded from education opportunities and employment and are thus at higher risk of the impacts of climate change, not least because they have very low levels of awareness on climate risks. Cultural norms require women to be accompanied by a male household member when travelling, so worsening health, for instance, will create further dependency for accessing healthcare services. People who depend on natural resources for a living, including pastoralist Kuchis and farmers, will be at increased risk from the impacts of climate change and will witness higher deficiencies in food availability as well as lower financial capacity to deal with the adverse impacts of a changing climate. Women who are already malnourished as well as those who are pregnant and lactating face worsening food and water security, and are also high-risk groups. Vulnerabilities are not mutually exclusive and many people will find themselves in overlapping categories of vulnerability e.g., a poor Pashtun woman from a smallholder farming family in the drought-prone southern region.

RECOMMENDATIONS

1. The impacts of climate change are highly linked to geographic location so risk reduction strategies and medium- to long-term adaptive interventions have to be specific to local geographies.
2. Promote community-based early warning and early action through community volunteers to disseminate information to reach those who do not have access to warnings issued on public media – TV and radio – and through SMS on cell phones.¹
3. Early warning and awareness-raising plans should ensure that they target women's groups and networks so that this information reaches them.
4. Identify and address multiple vulnerabilities of people exposed to climate change impacts.
5. Adopt appropriate vulnerability criteria for monitoring and evaluation. For example, age- and sex-disaggregated nutritional security and household-level food and water security.

¹ About 60 per cent of the populace owns cell phones, though it's mostly men. <https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=AF> and the Mobile Gender Gap Report 2019.

3. HOW WILL LIVELIHOODS BE AFFECTED BY CLIMATE CHANGE?

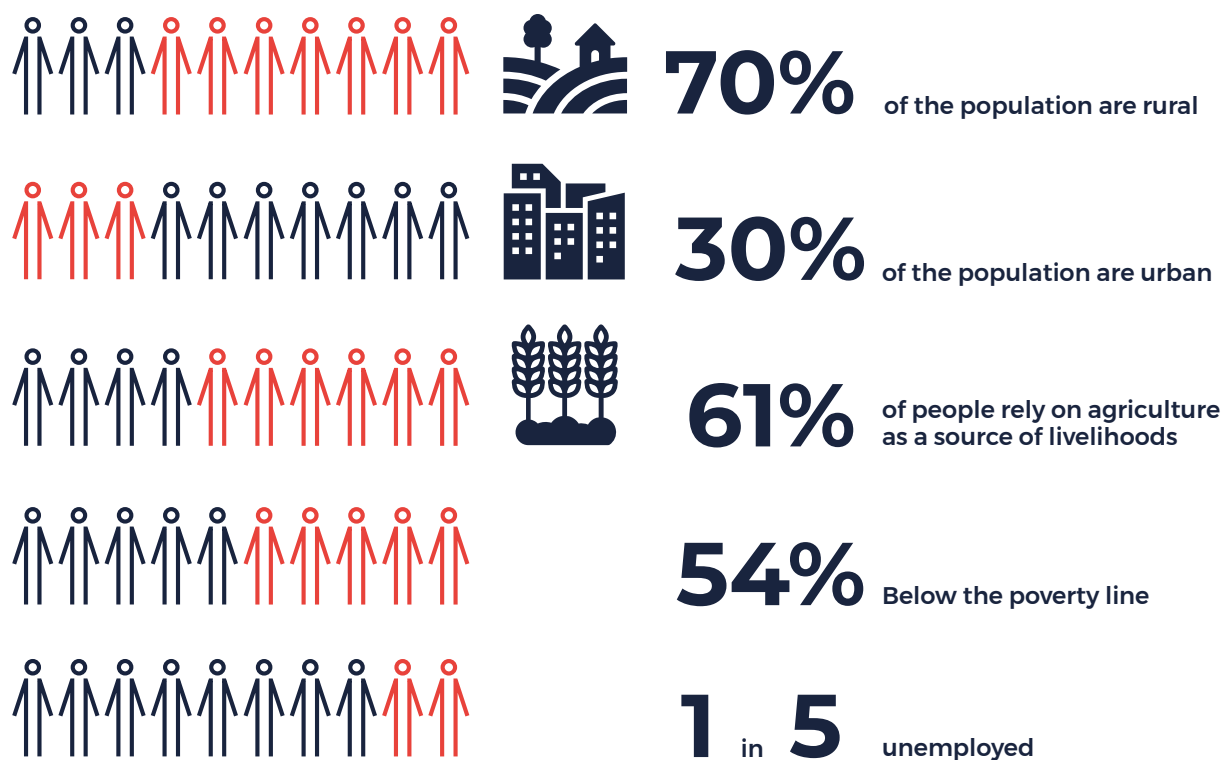
Livelihoods are “the ensemble or opportunity, set of capabilities, assets, and activities that are required to make a living” (Chambers and Conway 1992; Ellis 2003). Livelihoods are dynamic and, depending on internal and external stressors, people may shift, adapt and transform their livelihoods. Livelihoods are extremely fragile due to a number of factors: 1) they are mostly dependent on climate-sensitive natural resources; and 2) longstanding conflict and climate change are interacting to erode people’s adaptive capacity (Aich *et al.* 2017). According to Olsson *et al.* (2014), there is high confidence that climate change, climate variability and climate-related hazards exacerbate other stressors, worsening existing poverty and other inequalities and triggering new vulnerabilities, which typically have negative outcomes on livelihoods.

The following sections briefly discuss the main livelihoods in Afghanistan, focusing on agricultural and non-farm work and highlighting how climate change is going to impact these.

3.1. COUNTRY LIVELIHOODS PROFILE

The impacts of climate change on livelihoods are a major concern in Afghanistan due to the combined factors of a high poverty rate (upwards of 54 per cent of the population) and a heavy reliance of the overwhelming majority of the population (80 per cent) on the natural resource base of the country. Agricultural land has witnessed a 60 per cent decline since 1978 due to degradation and desertification resulting from severe flood events, wind erosion, deforestation, heavy untimely rainfall, temperature increases and reduction in soil moisture – the latter particularly in the northern and southern regions (75 per cent of land degraded) (NEPA 2017; NAPA 2009). There is weak rural entrepreneurship, though there are about 3,000 ‘jewellery villages’ and small artisanal workshops generating employment for about 70,000 people, most of them women (UNDP 2020). Women mostly work at home, making jewellery from mined precious and semi-precious stones. However, much of this work finances the conflict (UNDP 2020).

Figure 2. Employment statistics. Source: ILO 2017



Extensive deforestation and over-harvesting have denuded forests which now cover less than 2 per cent of Afghanistan's total land. This has affected water flow and the accretion of soil, especially in the Northern Pistachio Belt and the Eastern Forest Complex. Northern watersheds, for instance, get fed by water sources in the Northern Pistachio Belt. Warmer temperatures are expected to shift forest lines upwards and will herald the advent of new pests, diseases and invasive plants which will strongly affect the livelihoods of already vulnerable people (NEPA 2017).

Afghanistan has adequate water resources for its needs but these resources are not evenly distributed geographically or through the seasons. Forty per cent of households own irrigated land, mostly smallholder agriculture with an average size of approximately 1ha (NSIA 2020). Rainfed land is owned by 20 per cent of the population, with an average size of 2ha (NSIA 2020). Eighty per cent of the freshwater resources originate from the Hindu Kush mountains, and 98 per cent of water consumption goes towards agriculture and livestock (FAO 2012). Unequal distribution of water resources across regions, limited (damaged) storage infrastructure and a growing population are all causes of increasing water stress in the country. Higher temperatures will exacerbate water stress issues (Aich *et al.* 2017) and also change the rainfall patterns; including more rain instead of snow and faster melting of snow (NEPA 2017). This will affect the hydrology of the river basins. In 2017–2018, a combination of low rainfall and a dry winter led to more dry streams and empty reservoirs, causing water shortages for irrigation and drinking purposes (World Bank

2018). Currently, the risk of drought is highest in the Helmand basin, but this is expected to affect all the river basins due to climate change (World Bank 2017).

The gender gap is huge with 80.6 per cent of males participating in the labour force, compared to just 26.8 per cent of women (NSIA 2019). Afghanistan has a low Gender Development Index of 0.625, ranking 167 among 189 countries (2017) and one of the reasons is the low participation of women at decision-making tables. More than two-thirds of the women work as unpaid 'family' workers, compared to 12 per cent of men, and less than 2 per cent of women find work as daily labourers compared to almost 20 per cent of all men (NSIA 2019). Overall, about nearly one-quarter (23.9 per cent) of the men and almost half (47.4 per cent) of the women are unemployed (NSIA 2019).

“Livestock rearing, handicraft, small farming are the main occupations of women in Afghanistan in the rural area. This makes them more vulnerable to climate shocks. In the urban area there are different employment opportunities available for women, for example, government jobs, UN, NGOs, and in the private sector.” (KI 7)

3.2. AGRICULTURE

The agricultural sector directly employs approximately 42 per cent of the population, but contributes towards the livelihoods of over 61 per cent of the population. The multiple climate-stressors on agricultural productivity and, by extension, availability of agricultural labour, include:

- higher temperatures causing reduced soil moisture during the planting season (USAID 2016)
- less frequent rain during peak cultivation season, leading to yield decreases (changing rainfall patterns) (USAID 2016)
- water shortages causing crop failure (USAID 2016).
- reduced river flow following the early melting of snow and reduced water supply in later months (Savage *et al.* 2009)
- Plant diseases and the proliferation of pests (GFDRL and World Bank 2018).

Horticulture or subsistence vegetable garden plots are a source of nutrition for 16 per cent of rural households and provide a substantial source of income for areas around Kabul (Leao, Ahmed and Kar 2018). There is evidence that these are already being affected by: 1) heatwaves, which are predominantly impacting fruit, vegetables and potato growth; and 2) hail, thunder and lightning accompanying extreme rainfall events for 20 days resulted in 20 per cent of losses in horticulture and agriculture production (NEPA 2017). Reduced horticulture will have impacts on food security (NEPA 2009).

“In the cold season people face impacts on their crops. Snowfall used to come according to the calendar, now the weather happens at a different time and they cannot prepare. If the snowfall comes very soon, it affects many different crops, mostly vegetables” (KI 6)

Livestock and the animal husbandry sector (sedentary, seasonal transhumance and migratory systems) are estimated to account for more than 50 per cent of the country's agricultural GDP (NEPA 2017). As a result of climate change, this sector may suffer from a loss of range land (through land degradation and desertification); heat stress on livestock and herders due to higher temperatures and drought; and changes in habitat and vegetation cover, and therefore grazing potential, due to temperature variability (cold waves and heatwaves) (NEPA 2017). The resulting impacts will affect livestock reproduction and reduce the availability of animal feed leading to livestock starvation, disruption in reproduction and/or forced sale culminating in lower incomes (USAID 2016). The severe droughts between 1999 and 2004 led to a loss of over 50 per cent of the pastureland and about 3 million livestock, leading to humanitarian aid for nearly one million people (World Bank 2018).

Opium poppy. Poppy is a cash crop that is generally much more profitable compared to wheat. Moreover, it is more heat-resistant and requires less water (GFDRR and World Bank 2018). Continued efforts to eradicate poppy growing have resulted in a decline in cultivation, but it nevertheless remains an important economic and agricultural crop for an estimated 14.3 per cent of the total population (Savage *et al.* 2009). Poppy offers farmers in unstable areas an opportunity for quick cash “allowing them to buy wheat, flour, rice and other staples” (GFDRR and World Bank 2018). Under potential climate change conditions (more frequent droughts, water scarcity and land degradation/desertification), there may be more compelling drivers for farmers to engage in poppy cultivation (GFDRR and World Bank 2018; NEPA 2009).

Food insecurity

Decades of protracted conflict and instability have caused high levels of acute and chronic food insecurity across Afghanistan. These challenges are exacerbated by climate change (such as the increased frequency and intensity of drought) and its negative impacts on natural resources. The most vulnerable are subsistence farmers and those practising rainfed agriculture, who have relatively low crop diversification (WFP 2017). Wheat is the primary rainfed crop and is highly climate sensitive, leaving households vulnerable to the double risk of climatic shocks and low wheat prices in local markets because of the over-supply of one crop (Leao, Ahmed and Kar 2018). Households spend a very high percentage of their income (75–85 per cent) on food, which is an indication of their increased risk of food insecurity to any shifts in income or increases in food prices (Savage *et al.* 2009). More than one-third of the population faced severe crisis or emergency levels of food insecurity in 2019 and the implications

on health (including lifelong complications) and productivity from insufficient calorie and nutrient intake is alarming (IPC 2019).

“Drought: Each year, 2 million people are displaced from their original birthplace. They had rainfed agricultural land. Droughts affected their livelihoods. Because of that they immigrate from their own place, and they become IDPs (Internally Displaced Persons). Now we have more than 1 million IDPs around the big cities like Herat, Kabul. This is the impact of drought.” (KI 4)

3.3. NON-FARMING LIVELIHOODS

In both urban, peri-urban and rural contexts, a large share of off-farm employment (41 per cent) is in agriculture-related sectors, such as food processing and the selling of agricultural products (GFDRR and World Bank 2018). Activities outside the agricultural sector include commercial/service work, construction, trading and transportation, which are all dominated by men (GFDRR and World Bank 2018). In urban contexts, climate-related shocks (floods, droughts) to the rural agricultural sector are therefore a major risk to income security for urban agro-based livelihoods. Heat stress will also impact workers in construction and street vending, and anyone living in dense poorly ventilated housing.

3.4 PHYSICAL ASSETS (HOUSES AND WORKPLACES)

Intense rainfall combined with poor drainage causes urban flash flooding with damages primarily affecting commercial buildings (40 per cent) and houses (33 per cent) (World Bank 2017). On a local scale, thunderstorms during the winter and spring frequently destroy or disrupt key nodes of an electricity supply network (World Bank 2018). Over 60 per cent of Afghanistan is at risk of landslides caused by heavy rainfall with high damage risk to lives and assets, especially in Badakhshan, Daykundi and Ghor (World Bank 2017).

Besides damage from climatic hazards (listed below), conflict remains the major threat to the physical and financial assets of households.

3.5. CONFLICT

Although the link between conflict and climate change is still a source of scientific disagreement, there is growing support for the notion that the stress on the environment as a result of climate change is challenging natural resources and livelihoods and resulting in tensions and conflict (Přívvara and Přívarová 2019). Climate change can exacerbate existing tensions and may provide the spark that leads to violence (WFP 2017). Climate change may increase the risk of conflict through “competing land uses and decreased natural resource and water availability.” (NAPA, 2009, p. 9).

As 80 per cent of people depend on the natural resource base of the country, adverse climatic conditions and restricted coping capacity may motivate people to search for alternative livelihood options.

- “Conflict restricts the mobility of nomadic populations, limiting their ability to adapt migration routes. Water access is a regional pressure point in Central Asia. Four of Afghanistan’s main rivers are transboundary and future water needs could heighten regional tensions.” (USAID 2016)
- “In Afghanistan specifically, some studies have linked reduced rainfall or irrigation flows in some areas with increased poppy production, which could in turn have helped finance and fuel the insurgency in the area” (WFP 2017, 9)
- “As conventional crops become less and less viable in some areas due to drought and desertification, rural populations will increasingly be driven to alternative livelihood options and, potentially, insurgency.” (WFP 2017, 8)

SUMMARY: HOW WILL LIVELIHOODS BE AFFECTED BY CLIMATE CHANGE?

Climate change will affect the main source of livelihoods – agriculture (horticulture, livestock, farming, and cash crops) – for the majority of the population. High temperatures are causing a reduction in soil moisture during planting and heat stress on livestock; less frequent rain during spring, which is peak cultivation season, leading to yield decreases; increased water shortages due to reduced river flow (from early onset snow melt) causing crop failure; and the proliferation of pests as temperatures favour their breeding. The recurrence of droughts, high temperatures causing early snowmelt, and significantly less spring rain are affecting the main food basket areas (Central and Eastern Highlands, and the north). More frequent hail, thunder and showers are destroying crops. In addition, the reduced rainfall and increased risk of drought in the already arid south will deepen the stresses communities living here are already under. With most people in urban areas employed on informal terms in the agro-industry, climate stresses will also impact their livelihoods.

RECOMMENDATIONS

1. Focus on water management in both the high mountains, where rainfall and snowmelt may exceed current management capacity, and in the arid south, where water insecurity will be a major issue.
2. Help communities to understand how seasons are projected to change and how they can adapt their practices; explore the use of drought-resistant seeds and other types of water-efficient crops which can be viable alternatives to poppy.
3. Consider introducing Forecast-based Financing to communities in the arid south.
4. Ensure livelihoods information and diversification strategies target women.

4. HOW WILL HEALTH BE AFFECTED BY CLIMATE CHANGE?

4.1. MORTALITY AND NON-COMMUNICABLE DISEASES

The injury and mortality impacts of climate change in Afghanistan are significant: over the past 40 years, natural hazard-related disasters have affected nine million people and caused over 20,000 fatalities in the country (World Bank 2017). As climate change is projected to increase the frequency, duration and intensity of these natural hazard-related disasters, trends of injury and mortality are likely to increase. In 1970–2012, approximately two-in-three people were impacted by drought, while simultaneous flooding wreaked havoc on the economy, mounting to an estimated 400–600 million US dollars in losses (World Bank 2018). Floods are not only the most common hazard, they are also the costliest in terms of economic damage (NEPA 2017). Though these climate-driven natural hazard-related disasters are increasing across Afghanistan, the poorest households are almost twice as likely to experience a shock from a natural hazard-related disaster as compared to the wealthiest households (World Bank 2017).

"We had a very extreme flood in August 2020 – in this flood, more than 200 people lost their lives. Everyone is vulnerable to climate change. In the last year we did not have [expected] floods in the winter but this year we had summer floods in Parwan. Up to now 550 people have passed [away] due to climatological disasters like floods, extreme weather, avalanches. More than 400 people have been extremely injured due to these events, and 100,000 homes, a lot of agriculture and thousands of livestock lost" (KI5).

Heatwaves are expected to increase in duration and severity due to climate change. There will likely be negative health impacts (e.g., heat exhaustion, heat-related deaths) due to: 1) more heatwaves (extreme acute events); and 2) overall chronic heat exposure (i.e., the number of 'hot' days and nights are projected to increase by 2100). This will affect people's ability to work during the daytime and to sleep properly at night. Populations in urban areas are at increased risk to heatwaves because cities are more prone to the urban heat island effect, as a product of the built environment, such as sealed surfaces and dense buildings trapping heat, placing stress on infrastructure and negatively impacting city dwellers' health (NEPA 2017).

Air quality is an additional concern, as an estimated 60 per cent of the population is exposed to elevated concentrations of particulate matter (PM). This burden of air pollution results in an estimated 2,000 excess deaths per year (World Bank 2018). Climate change will likely exacerbate air quality issues (NEPA 2015).



"Acute Respiratory Infection (ARI) is the top disease, causing problems" (KI 3)



Cold weather is more intense now, and snowfall is more and longer. This is causing road blockages. We see pneumonia and acute respiratory infection is spiking among children in the winter months, particularly in the North due to the colder temperatures." (KI 2)

4.2. VECTOR-BORNE DISEASES

Vector-borne diseases pose significant health impacts and are highly sensitive to changing climatic conditions (temperature, precipitation, humidity), which exert a strong influence on the life cycles of the vectors (such as mosquitoes) (World Bank and Asian Development Bank 2020). Vector-borne diseases are also influenced by anthropogenic factors – which are not the focus of this report – such as population growth, urbanization and prevention and control measures.

The projected rise in temperature and precipitation will have a large impact on infectious, vector-borne diseases, increasing the risks of Malaria and Dengue Fever in the near-to-mid term including allowing for a longer transmission season while expanding the geographic range of mosquitoes into highland areas (Hales *et al.* 2002; NEPA 2015 & 2017; WHO 2015). Temperature variations resulting from climate change may also increase rates of neglected tropical diseases, such as Leishmaniasis (Adegboye *et al.* 2019).



The main diseases we see an increase in are malaria, typhoid and diarrhoea." (KI 3, 5, 6)

Malaria. Eastern Afghanistan has the highest burden of Malaria cases, but across the country approximately 76 per cent of the population is exposed to Malaria-causing mosquitoes (P.f. and P.v.) (WHO EMRO n.d.). Rising temperatures may increase Malaria transmission due to faster vector development (NEPA 2017).

Dengue Fever. In December 2019, the first cases of locally acquired Dengue Fever (i.e., the patients had not travelled to countries in which Dengue is endemic, such as neighbouring Pakistan and India) were recorded. The two predictors of Dengue Fever transmission and outbreaks – high rainfall and high temperature – are projected in certain regions of Afghanistan. Dengue Fever is thus emerging as a high concern for the Ministry of Public Health.

4.3. WATER, SANITATION AND HYGIENE

This section covers the main health issues related to Water, Sanitation and Hygiene (WASH) and how they will be impacted by climate change.

Water supply

The interactions of climate change will deepen water insecurity, due to more frequent and intense droughts and the projected increases in average temperatures. This will lead to increased evaporation, result in depleting water reserves and exacerbate drinking water shortages as early as 2025, especially in the most arid regions of Afghanistan (World Bank 2018). The cumulative effects of droughts and reduced flows in rivers will also decrease groundwater reserves, limit irrigation resources, increase soil erosion and reduce soil permeability (which may increase the likelihood of flash floods when there is rain) and have knock-on consequences for health in terms of malnutrition (as agricultural productivity is hampered) and water-borne disease transmission, as well as resulting in displacement and tension (NEPA 2015; USAID 2016; UNICEF n.d.). These impacts in urban areas, particularly in the capital Kabul, mean that access to water is problematic as groundwater levels decline under less recharge (climate related) and higher demand alongside poor infrastructure (not climate related) (KI 2; (Mack, Chornack and Taher 2013; Zaryab *et al.* 2017).



67%

of the **OVERALL POPULATION** have access to safe drinking water

Sanitation

Floods and heavy rainfall aggravate environmental contamination – especially of water sources – from improper sanitation. Already, access to sanitation among the poor is extremely low (2.8 per cent) (The World Bank and Ministry of Economy 2015); and, of the households that do have toilets, only about 40 per cent are considered safe (i.e. hygienically separate human waste from human contact) (UNICEF 2019). Both limited access to clean drinking water and a lack of proper handling of waste leave many people exposed to a contaminated environment with negative health impacts.



26%

of the **RURAL SPECIFIC POPULATION** have access to safe drinking water

“We expect floods in some areas of the country. But there are new areas affected. We see the water and sanitation systems damaged and the drainage systems are not working enough/properly where floods were not occurring before. As a result, we see cholera and diarrhoea outbreaks.” (KI 2)

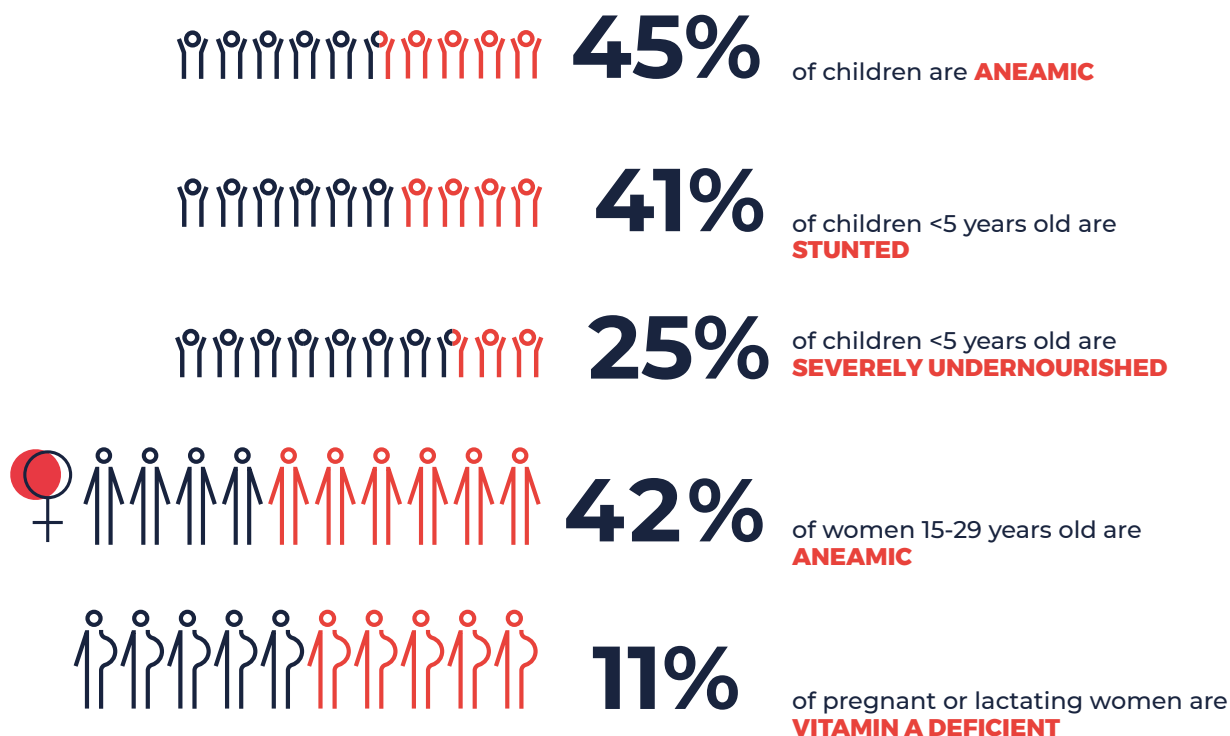
- **Water-borne diseases.** Afghanistan has the fourth highest rate for diarrheal deaths in children under five years old in the world, and diarrhoeal diseases are the second most common cause of death for children under five (Aluisio *et al.* 2015). Diarrhoea typically peaks in summer, in arid as well as mountainous areas (Wagner *et al.* 2017). Climate change increases the risk of water-borne diseases as higher temperatures enable longer pathogen growth; floods may cause water contamination; and droughts restrict drinking water access (Anwar *et al.* 2019). In the more densely populated east of Afghanistan, diarrhoea occurs throughout the year at high rates, likely driven by pollution density and pollution (Anwar *et al.* 2019).
- **Cholera**, in particular, is a major risk and cases are likely to increase under both drought and flood conditions, which can impact sanitation facilities and facilitate the spread of the disease (Savage *et al.* 2009; Přivara and Přívarová 2019).

4.4. MALNUTRITION

Malnutrition is already alarmingly high, as a result of decades of conflict and the cumulative effects of droughts. The continued impacts of climate change on food insecurity are expected to worsen the situation and further destabilize health and economic systems. One-third of Afghanistan’s 30 million people are acutely and severely food insecure; 25 per cent of children are severely undernourished; and 40 per cent of children are stunted – a sign of chronic malnutrition (USAID 2016; UNICEF 2021). Dietary variation is in general limited, consisting of cereal and oil daily, and dairy, vegetables and sugars only one to three times a week for 24 per cent of households (NAPA, 2009). Alongside general under consumption of calories, there is also a lack of micronutrient consumption (Vitamins A and D) in both children and women (especially pregnant and lactating women) (Global Nutrition Report 2018; Kim *et al.* 2020). These trends are projected to worsen as a result of climate change, in particular the decreasing springtime rainfall and increased frequency and intensity of droughts.

“Nutrition and food security are important. Agriculture is now considered critical since Covid exposed our dependency on imported food. Nutrition-related diseases are there, low availability of fresh foods and vegetables is the main issue.” (KI 6)

Figure 4: Source: UNICEF website; Global Nutrition Report; Kim *et al.* 2020



4.5. DISPLACEMENT AND MIGRATION

According to the International Organization for Migration, one-third of all people have migrated or been displaced since 2012 due to climate change and conflict (USAID 2016; ActionAid 2020). Conflict and climate change are interacting in complex ways, and the linkages between the two are under debate.



1 in 3 displaced

Though acute events are more commonly drivers of displacement, the higher frequency and intensity of slow-onset disasters like droughts and the degradation of natural resources due to climate change are contributing more to long-term migration away from areas which have crossed an ecological threshold. This is clearly visible where the ecosystem is unlikely to return to 'normal' and people are unable to continue their livelihoods, fulfil their basic needs and pay for basic services like healthcare. The slow-onset disasters are more challenging to overcome because of the total transformation of landscapes and its acute impacts on natural resources-based livelihoods. On the health front, health disparities between the displaced people and the local population may increase because displaced people are more resource-poor and therefore less easily able to access healthcare, jobs, or safe, clean shelters.

4.6. MENTAL HEALTH

“There is a vicious cycle of poverty, climate change, conflict – so most of the vulnerable suffer from depression because of social problems, conflict, migration, internal displacement, war, social norms, many children to feed and care for. It is very difficult and it is not limited to climate, all together these things bring misery to the people.” (KI 2)

An estimated 50 per cent of all people suffer from mental health problems due to decades of conflict (Islamic Republic of Afghanistan 2009). Rural populations are at increased risk of mental illness due to the additional stressors of climate change and the loss of livelihoods and increased poverty, and without proper access to mental health services to support these needs (Kavaler 2020). People who have been impacted by conflict are also at heightened risk of mental illness resulting from climate change, as this population is already under increased stress from trauma (Islamic Republic of Afghanistan 2009).

4.7. CRITICAL INFRASTRUCTURE AND HEALTHCARE SYSTEMS

Recent efforts by the Afghanistan government have succeeded in improving the country's healthcare system. In 2018, 3,135 healthcare facilities were functional throughout the population, giving 87 per cent of the population access within two hours' distance (WHO EMRO n.d.). Though Afghanistan is striving to make healthcare accessible to everyone, regardless of status or income, through the basic package of the healthcare system (BPHS), these services often fall short due to conflict-related traumatic injuries overwhelming the system (WHO 2018). Furthermore, many of those in poverty or living in rural areas are unable to access or utilize healthcare facilities due to distance, high cost, low awareness and a shortage of female healthcare providers to whom women prefer to go (WHO EMRO n.d.). As climate change increases the rural-urban divide and puts additional stressors on those living in poverty and in rural areas, healthcare disparities in the country are likely to rise as access to medical services decreases.

Extreme climate events are also likely to damage critical infrastructure in Afghanistan. Though only 43 per cent of the country has access to electricity, hydropower generates 79 per cent of total supply (USAID 2016). Variations in climate and drought conditions are likely to reduce the availability of water for hydropower generation, particularly in rural communities. Further, infrastructure damage is likely due to damage from flooding, avalanches and other extreme weather events (USAID 2016).

“Cold weather and high snowfall: With the Roads blocked because of harsh winter, north of the country inaccessible for 4–6 months. Difficult for people in need of healthcare, maternal and prenatal care. Caesarean section complications occur more frequently in these regions.” (KI 2)

4.8. SEXUAL, REPRODUCTIVE, MATERNAL, NEWBORN AND CHILD HEALTH

Climate change already is, and will continue to, affect men and women as well as boys and girls differently. Key areas of concern from global studies have shown how the climate crisis is changing the dynamics and risk of forced child marriages, human trafficking, sexual exploitation and gender-based violence (Castañeda Carney *et al.* 2020). However, considerable gaps in research and evidence that link climate change and sexual and reproductive health rights exist both globally (Women Deliver 2021) and in Afghanistan.

Some key trends bear consideration with regards to SRMNCH and climate change:

- **Accessing sexual and reproductive healthcare services:** Extreme weather or climate-related disasters (such as landslides, floods etc.) may cut people off from accessing services (such as antenatal care) and supplies (Women Deliver 2021).
- **Sexual health:** The practice of child marriage remains rife. Over one-in-ten (12 per cent) of teenage girls (15–19 years old) have borne a child, indicating the need for access to sexual and reproductive health rights and services starting at an early age (CSO, MoPH and ICF 2017). There is anecdotal evidence that climate stressors, such as elongated dry spells leading to drought, influence families' decisions to marry their daughters off earlier, in order to reduce the number of mouths to feed in the family and receive a dowry to help reduce debts (UNICEF, 2019). Fifty-six per cent of ever-married women aged 15–49 years old report experiencing emotional, physical and sexual violence from their spouses (CSO, MoPH and ICF 2017). Women from rural areas (56 per cent) and women without education (56 per cent) are more likely to report violence, compared to educated women (28 per cent) from urban areas (43 per cent), but the great majority of these women suffer in silence and do not report these incidences or seek help (CSO, MoPH and ICF 2017).
- **Reproductive health: Twenty per cent of women** (aged 20–24 year old) give birth before their 18th Birthday. Giving birth earlier is a known risk factor for the mother's and child's health (UNICEF 2021). There is no data linking this with climate change.
- **Maternal health:** Pregnant and lactating women may experience more dehydration and exhaustion as the number of hot days increases, and their nutritional status may further decrease (see issues of anaemia and vitamin (A and D) deficiency the Malnutrition section).
- **Newborn and child health:** The level of malnutrition amongst children is very high and may be exacerbated as food insecurity increases (See Malnutrition section).

“We need more information for females in Afghanistan, getting the information is really difficult. The remote communities do not let women talk to us.” (KI 6)

“Most schools are not sufficiently equipped with menstrual hygiene management (MHM) facilities, nor do they offer information on this for adolescent girls.” (KI 8)

SUMMARY: HOW WILL HEALTH BE AFFECTED BY CLIMATE CHANGE?

The main climate-change health risks include heat exhaustion and stress from increased temperatures; recurrent droughts which will augment food insecurity and resultant malnutrition (which is already very high) from crop failures; and increased cases of vector-borne diseases (an already high burden) as conditions favour the spread and breeding of mosquitoes. Water insecurity is a major concern in the already arid country, which may interact with increased contamination of water and the risk of Cholera. Migration and displacement are already high due to the dual pressures of conflict and climatic stressors; PTSD and mental health issues also already pose a considerable burden. As climate change increases the rural-urban divide and puts additional stressors on those living in poverty and in rural areas, healthcare disparities in the country are likely to rise as medical services are increasingly in demand. There are strong links between how climate change will impact SRMNCH, such as the potential increase in child marriages and earlier births; the lower food intake of women and girls who, on an average, are already more malnourished than men; and heatwaves, prolonged drought, increased flooding and heightened food and water insecurity for the lactating mother, putting babies in danger.

RECOMMENDATIONS

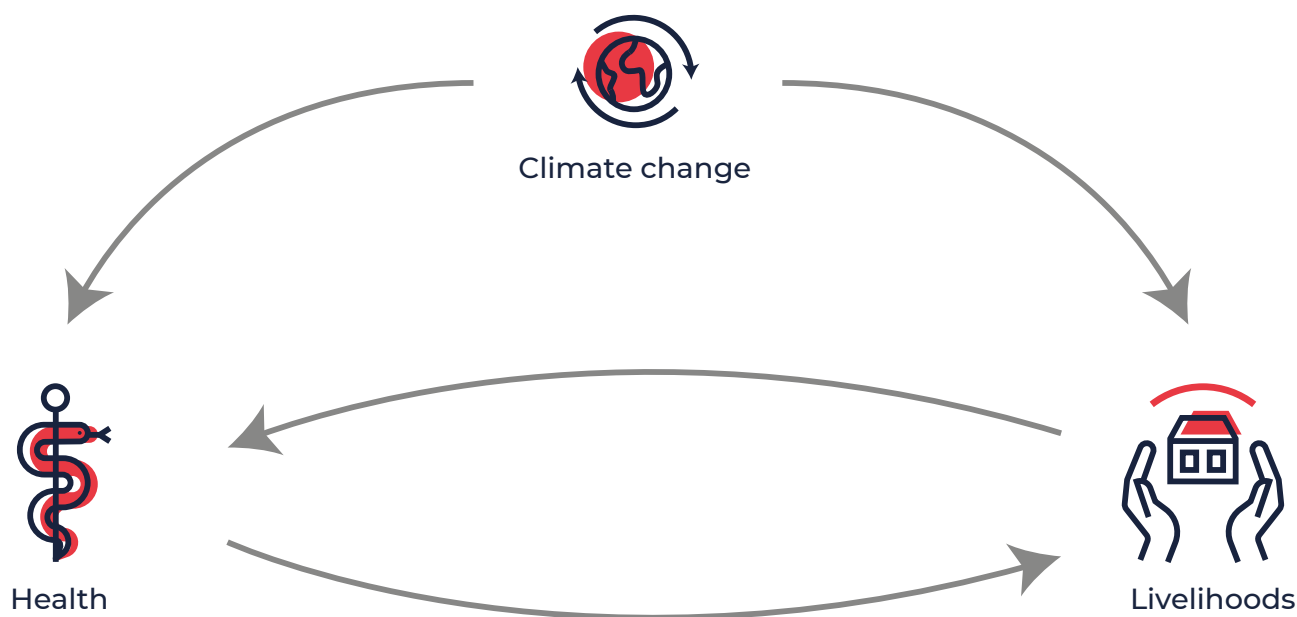
1. Improve surveillance systems of vector-borne diseases in mountainous or high plateau areas, which may not previously have been exposed to mosquito populations.
2. Focus holistic programmes on food security and diversification, with integrated early warning and Forecast-based Financing to help communities cope with drought or other extreme weather events and not resort to negative coping strategies harmful to health.
3. Research the links between climate change and women's health further and ensure programmes are designed to incorporate female health workers and outreach officers to gain access to women.



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5. LINKAGE BETWEEN CLIMATE IMPACTS ON HEALTH AND LIVELIHOOD

Climate change has the potential to affect health and livelihoods in a negative feedback loop. When climate change negatively affects livelihoods, people do not have sufficient money to ensure good health and pay for healthcare, causing a spiralling of acute or chronic conditions; likewise, when climate change negatively affects health, people may be unable to work and thereby earn sufficient money to pay for the healthcare they need, further reducing their ability to get better. A popular idiom in South Asia says: *jaan hai to jahan hai* – “the world exists when life exists” where ‘life’ denotes a healthy, well-provisioned existence.



The extreme increases in temperature which are projected (certain) will have significant ramifications on health and livelihoods. Heat exhaustion and stress on the body is likely to increase as the number of ‘hot’ days increases and heatwaves become more frequent (especially in the south). During the spring and summer seasons, it may become impossible to work during the day. Women are often not able to leave the house without a male accompanying them; therefore, the impact of heat on them at home will depend on the level of crowding in the house, and its ventilation. The projected temperatures are so significant that pregnant women are especially at risk in poorly ventilated homes and their productivity will go down further. Chronic conditions will also be negatively impacted under increased heat stress, including heart disease and respiratory disease (especially the case in urban areas such as Kabul, which is already highly polluted). An increase in temperatures will also expand

the range of vector-borne diseases (Malaria already poses a significant burden on the population), which will impact health and the ability to work for populations who had not previously been exposed.

“For example, the rural and urban population mainly spent part of their incomes on the treatment and healthcare of their family members and these costs significantly impacted the total family expenses and reduced their savings. The coping mechanisms are very weak within the vulnerable households, most of the time they adopt negative coping mechanisms, like they are taking out their children from the schools and sending them to hard work, taking loans from informal sources or forcing their girls to early marriage.” (KI 7)

With climate change affecting food productivity, malnutrition may increase (without concerted humanitarian action) as food prices increase and there is less domestic food production, and this will directly impact health parameters. As a consequence, people's productivity will be affected, resulting in a vicious circle as lower incomes impact access to adequate food and healthcare services

Furthermore, drought is likely to be a regular phenomenon by 2030, significantly affecting the semi-arid/arid regions which are heavily reliant on rainfed agriculture. Already two-in-three people are impacted by drought, which requires emergency humanitarian assistance. The increased frequency of drought and the degradation of natural resources poses challenges to the peacebuilding efforts in Afghanistan. Tension and violence over more and more scarce natural resources is increasing; poppy production tends to increase during droughts; and people may get involved in the armed conflict in their search for alternative livelihoods. Prolonged conflict in the country has severely restricted efforts to build up the healthcare system, roll out vaccinations, respond to disasters, and in turn has significantly affected communities' livelihood security. As natural resources are further degraded and historic ecosystems completely collapse migration is likely to increase from rural to urban areas as alternative livelihoods are sought. Mental health issues are already high from decades of conflict, and the stress of losing livelihoods along with the toll extreme weather and temperatures can take on the body may augment anxiety and depression.

SUMMARY: WHAT ARE THE KEY LINKAGES BETWEEN CLIMATE CHANGE, HEALTH AND LIVELIHOODS?

Heatwaves will impact both health and livelihoods, resulting in lower productivity which, in turn, will lead to lower available incomes for healthcare. Women, who mostly stay inside homes, will be more vulnerable in ill-ventilated, over-crowded houses. Declining food production will, again, impact both health and livelihoods with a negative feedback loop between them. Coupled with deepening water insecurity, the impacts may be more on women's health, especially during pregnancy and lactation when they will find it difficult to work. Prolonged droughts and desertification-induced conflicts over productive resources will give rise to mental stress and further incapacitate working ability.

RECOMMENDATIONS

1. Include the integrated linkages between climate change, health and livelihoods in awareness generation and information dissemination initiatives.
2. Build medium- to long-term resilience in health programmes by also addressing livelihoods aspects like income poverty and potential loss of livelihoods.
3. Focus on water security to achieve health and livelihoods outcomes.
4. Address sexual and reproductive health of women in relation to their paid and unpaid work responsibilities, including their work at home and as care-givers.

6. EXISTING CAPACITIES, STAKEHOLDERS AND PROGRAMMES

6.1. POLICY LANDSCAPE

There are several relevant climate policies and action plans as outlined in Annex A, a brief summary is provided in Table 2, below.

Figure 2: Institutional framework

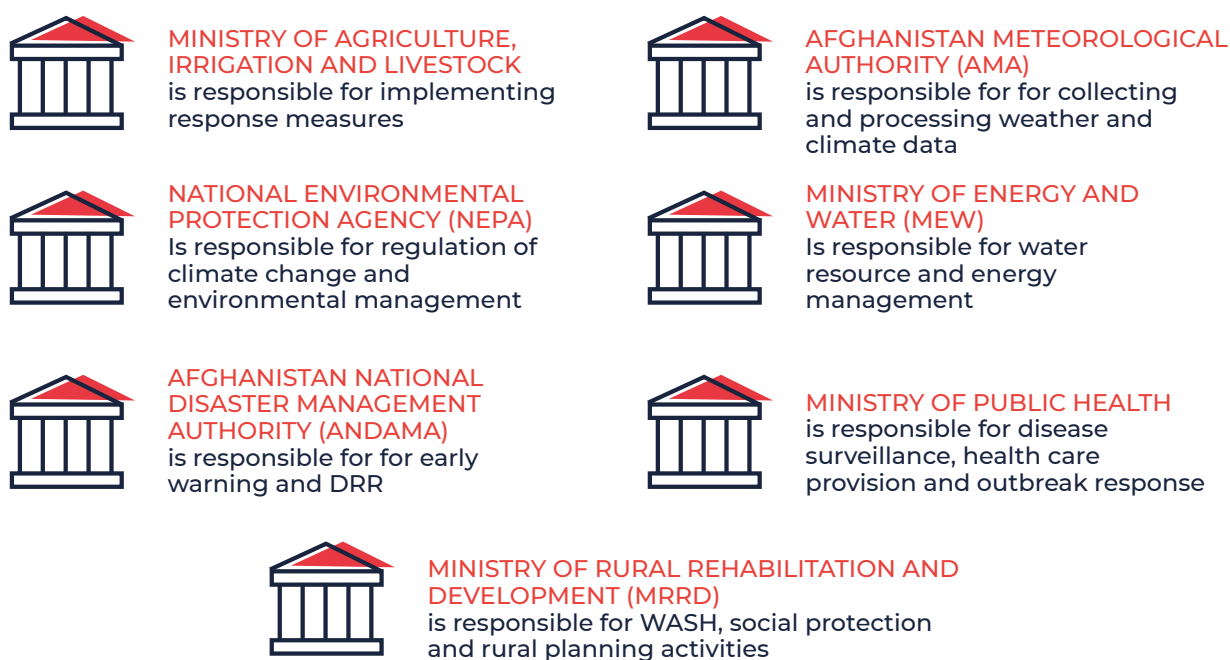


Table 2: Brief overview of the main climate policy documents

POLICY	DESCRIPTION OF CLIMATE-LIVELIHOODS-HEALTH FOCUS
National Adaptation Programme of Action and National Capacity Needs Self-Assessment for Global Environmental Management (NAPA, 2009)	<p>This is the guiding document on climate action priorities in Afghanistan.</p> <p>Main adaptation themes identified were: i) human health; ii) water resources and renewable energy; iii) agriculture and food security; iv) animal husbandry, grazing and rangelands; v) forests and biodiversity; vi) natural disaster preparedness and infrastructure; and vii) capacity building.</p> <p>The NAPA (2009) proposed a list of 11 priority projects. The adaptation measures address protection of the natural resource base and agricultural livelihoods from drought and flooding impacts.</p> <p>However, there is no mention of health-focused projects.</p>
Intended Nationally Determined Contributions (INDC 2015)	<p>This submission to the UNFCCC outlined government commitments to mitigation and adaptation to climate change. Although Afghanistan is a low carbon emission economy, it is committing to a 13.6 per cent reduction in greenhouse gas emissions by 2030. Nonetheless, the INDC particularly stresses the importance of donor funding and capacity building to achieve intended mitigation and adaptation commitments. The INDC mentions the potential damage of climate change to the natural resources on which the majority of people depend for their livelihoods. On health, the spread of water, food and vector-borne diseases are acknowledged, along with the potential to exacerbate social inequalities, poverty and food insecurity. The particular adaptation activities proposed mainly focus on water security, climate and weather monitoring and data collection as well as land conservation.</p> <p>However, the INDC does not list any particular health adaptation measures. The government of Afghanistan plans to revise its Nationally Determined Contribution (NDC) by May 2021.</p>
Afghanistan National Development Strategy (ANDS 2008)	<p>This document lists the environment as “a cross-cutting issue that underpins the entire social and economic development framework for the country.” (ANDS, 2008 cited in INDC, 2015). More recently, the A-SDG National Document (Afghanistan Sustainable Development Goals 2020) discusses climate change in:</p> <ul style="list-style-type: none"> • Goal 13: Climate Action of the A-SDG “Improving capacity and resilience against risks and natural disasters and incorporating climate change measures in national policies, strategies and programmes is a critical need in Afghanistan.” It lists drought and water scarcity problems due to glacial melt as the main climatic issues. • Mentions climate change in Goal 1: End Poverty “build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.” • Mentions climate change in Goal 11: Safe Cities and Settlements which mentions planning for climate change.

POLICY	DESCRIPTION OF CLIMATE-LIVELIHOODS-HEALTH FOCUS
Afghanistan National Peace and Development Framework (ANPDF 2017-2021)	Briefly mentions climate change impacts in the context of agricultural development and regional cooperation. Overall, the development policies in Afghanistan currently prioritize security, education and economic growth, and climate change is not indicated as a top priority.

6.2. CAPACITIES

GOVERNMENT OF AFGHANISTAN

STRENGTHS		CHALLENGES
<ul style="list-style-type: none"> In recent years the Afghan government, in coalition with international partners, has started a push for development. The disaster responses in Afghanistan, coordinated through relevant clusters, offer an opportunity for thematic cooperation among stakeholders 		<ul style="list-style-type: none"> While the government, local organisations and international actors are trying to address climate change in Afghanistan, the security situation remains a major barrier. Of the 398 districts registered by UNICEF, the government has no control over 119 and 103 are considered particularly difficult to reach (UNICEF 2019). As a result, "things are often left on paper" (KI 1). NAPA (2009) lists the following as major challenges: "Lack of capacity in terms of human resources; Low levels of awareness of the current and potential impacts of climate change; Limited access to arid and semi-arid zones in the south and the south-west due to a combination of physical isolation and ongoing conflict; Difficulty to adequately address (and institutionalize) environmental issues in the face of other pressing development challenges; Limited analytical capability, especially for analyzing climatic data to assess threats and potential impacts, and develop viable solutions; Limited resources, as funds of donor partner are currently overstretched addressing other priority issues that include security, health, education, gender, conflict resolution and agricultural development, amongst others".

AFGHANISTAN RED CRESCENT SOCIETY

STRENGTHS

- 34 provincial branches spread across the country and a network of 20,000 volunteers
- Leads on disaster response, focussing on internally displaced peoples
- Presence in provincial coordination platforms
- Experienced in disaster response
- Willingness to work on climate change; key component of the 2021-2025 Strategy



CHALLENGES

- Ongoing conflict in Afghanistan requires much of the ARCS funds, staff and volunteers. It also complicates field-based activities and long-term projects.
- Lack of adequate climate change information and knowledge within the ARCS (KI 6)
- Understanding of climate impacts and challenges on the specific areas of work of the NS are limited, and more training is required according to informants
- High dependency on (short term) donor projects, which complicate addressing long-term challenges such as climate change and impacts on livelihoods

“We need experts and knowledge. We need to read our laws and policies and include climate change as a very important issue. I have participated in different national programmes but, unfortunately this is not a focus area of the government. The government is more busy with social conflict.” KI 5

7. RECOMMENDATIONS AND OPPORTUNITIES

RECOMMENDATION 1: Scale-up climate-smart programming and preventative health activities, which adopt a multi-hazard early warning early action approach to preparedness.

Gap: Early warning and early action approaches are limited in Afghanistan, especially at the local level.

Opportunity for action: [Climate-smart programmes](#) and projects will need to be scaled. These initiatives need to adopt a community-based multi-hazard early warning early action approach to preparedness and prioritize risk-informed early action programming (forecast-based action/financing). Existing programmes that are climate-smart (especially for climate sensitive diseases e.g. vector-, water- and food-borne diseases etc.) have the potential to systematically integrate medium- and long-term climate information to anticipate, prepare for and reduce the health impacts in high-risk areas. This can be achieved by working in close collaboration with the national hydro-meteorology services and health authorities for projection information based on historical health and weather data. Materials to advance climate risks management, including climate-smart health programming can be found in the [Climate Training Kit](#).

RECOMMENDATION 2: Undertake research to better understand the drivers of displacement, and explore and pilot methods for the diversification of livelihoods in rural communities

Gap: The economy in Afghanistan is highly dependent on its natural resource base that is at risk from climate change. Climate change may drive rural populations to increase urban migration, further exacerbating urban vulnerabilities and challenges as competition increases in cities and urban centres for limited housing and livelihoods, resulting in the marginalization of those least well off.

Opportunity for action: Diversification of income and livelihoods in rural communities represents an opportunity for increased income as well as increased resilience to climate change. A focus on at-risk groups of people is required. Anticipatory action and weather-based risk insurance can help save crops and livestock. Water conservation and rejuvenation, promoting non-farm livelihoods and strengthening backward and forward linkages of agro-industry are other potential opportunities to provide health and livelihoods security in rural and urban areas.

RECOMMENDATION 3: Explore resilient crop varieties and agricultural techniques

Gap: Agriculture is a major employment sector in Afghanistan, but is also the most vulnerable sector to climate change. Without changes to current agricultural techniques and seasonal calendars, farmers and their families will be negatively impacted by climate change.

Opportunity for action: Methods to diversify agricultural techniques and grow new climate change-resilient varieties of crops represent an opportunity for farmers to keep their livelihoods, while reducing malnutrition across the country. Though climate change will have dramatic effects on agriculture through temperature increases and changes in rainfall patterns, new agricultural techniques and weather-resistant crop varieties represent an opportunity for this vulnerable population. Successful diversification of techniques and crop varieties will have positive downstream effects on both rural and urban populations by preserving livelihoods, reducing migration and increasing food access.

RECOMMENDATION 4: Home gardens for improving access to micronutrients for women in rural and urban areas

Gap: Women and children experience a high burden of micronutrient deficiencies.

Opportunity for action: Mobilize women's groups to build on a mother's traditional wisdom and her understanding of health and varied diet. Explore the opportunities for home gardens, in rural and urban areas, for women to improve the variety of foods they consume (as long as this does not create an additional burden on women). The promotion of vegetable gardens in rural and urban areas holds great potential to boost both nutrition and income through petty trading.

RECOMMENDATION 5: Promotion of health education for community awareness to climate-sensitive diseases may be an effective adaptive measure to prevent future occurrences of these diseases

Gap: How climate change will affect diseases is not well understood by the general public.

Opportunity for action: Public awareness regarding the changing climatic situation and its health impacts is needed. This can be an important strategy to reduce vulnerability to climate change and increase the effectiveness of adaptation options.

“I believe that if this trend continues, we will face more tragedy and more disasters. It is important for the international institutes to highlight the climate change problems.” (KI 5)

RECOMMENDATION 6: Research strategies in partnership with the government on how to improve water management and engage on national and sub-national adaptation plans

Gap: Water security is a major challenge in Afghanistan and will require concerted attention from a number of actors. This is especially the case in the arid south which already experiences frequent droughts that are expected to increase with climate change. Water is also inextricably linked to health and livelihoods and there is a need to strengthen these linkages.

Opportunity for action: Work with government agencies and universities to pilot and improve water management strategies (including innovative ways to capture, store and reuse water) for communities who are likely to experience water shortages. Link these with health, WASH and livelihoods benefits leveraging engagement with the national adaptation plan process to scale-up these interventions.



REFERENCES

- ActionAid. 2020. "Climate Change Induced Migration in Afghanistan." https://actionaid.org/sites/default/files/publications/Climate%20change%20induced%20migration%20in%20Afghanistan%20Final_0.pdf.
- Adegboye, Majeed A., Jamiu Olumoh, Timor Saffary, Faiz Elfaki, and Oyelola A. Adegboye. 2019. "Effects of Time-Lagged Meteorological Variables on Attributable Risk of Leishmaniasis in Central Region of Afghanistan." *Science of The Total Environment* 685 (October): 533–41. <https://doi.org/10.1016/j.scitotenv.2019.05.401>.
- Aich, Valentin, Noor Ahmad Akhundzadah, Alec Knuerr, Ahmad Jamshed Khoshbeen, Fred Hattermann, Heiko Paeth, Andrew Scanlon, and Eva Nora Paton. 2017. "Climate Change in Afghanistan Deduced from Reanalysis and Coordinated Regional Climate Downscaling Experiment (CORDEX)—South Asia Simulations." *Climate* 5 (2): 38. <https://doi.org/10.3390/cli5020038>.
- Aluisio, Adam R., Zabihullah Maroof, Daniel Chandramohan, Jane Bruce, Mohammad I. Masher, Semira Manaseki-Holland, and Jeroen H. J. Ensink. 2015. "Risk Factors Associated with Recurrent Diarrheal Illnesses among Children in Kabul, Afghanistan: A Prospective Cohort Study." *PLoS ONE* 10 (2). <https://doi.org/10.1371/journal.pone.0116342>.
- Anwar, Asim, Noman Khan, Muhammad Ayub, Faisal Nawaz, Asim Shah, and Antoine Flahault. 2019. "Modeling and Predicting Dengue Incidence in Highly Vulnerable Countries Using Panel Data Approach." *International Journal of Environmental Research and Public Health* 16 (13). <https://doi.org/10.3390/ijerph16132296>.
- Asian Development Bank. 2017. "Afghanistan, 2017–2021 —Achieving Inclusive Growth in a Fragile and Conflict-Affected Situation." <https://www.adb.org/sites/default/files/institutional-document/371531/cps-afg-2017-2021.pdf>.
- Castañeda Carney, Itza, Laura Sabater, Cate Owren, and A.E. Boyer. 2020. *Gender-Based Violence and Environment Linkages: The Violence of Inequality*. Edited by Jamie Wen. IUCN, International Union for Conservation of Nature. <https://doi.org/10.2305/IUCN.CH.2020.03.en>.
- Chambers, R, and G Conway. 1992. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. UK: Institute of Development Studies. <https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/775/Dp296.pdf?sequence=1ANT>.
- CSO, MoPH and ICF. 2017. "Afghanistan Demographic and Health Survey 2015."

- Ellis, F. 2003. "A Livelihoods Approach to Migration and Poverty Reduction." Overseas Development Group. https://www.researchgate.net/profile/Frank-Ellis-2/publication/228593669_A_Livelihoods_Approach_to_Migration_and_Poverty_Reduction/links/00b49524a93a66592c000000/A-Livelihoods-Approach-to-Migration-and-Poverty-Reduction.pdf.
- FAO. 2012. "AQUASTAT Country Profile – Afghanistan." Rome, Italy. <http://www.fao.org/3/ca0357en/CA0357EN.pdf>.
- GFDRR, and World Bank. 2018. "Afghanistan Multi-Hazard Risk Assessment." <https://www.gfdr.org/en/publication/afghanistan-multi-hazard-risk-assessment?deliveryName=DM7553>.
- Global Nutrition Report. 2018. "Global Nutrition Report: Afghanistan." 2018. <https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/afghanistan/>.
- Hagen, E., and J. F. Teufert. 2009. "Flooding in Afghanistan: A Crisis." In *Threats to Global Water Security*, edited by J. Anthony A. Jones, Trahel G. Vardanian, and Christina Hakopian, 179–85. NATO Science for Peace and Security Series C: Environmental Security. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-90-481-2344-5_19.
- Hales, Simon, Neil de Wet, John Maindonald, and Alistair Woodward. 2002. "Potential Effect of Population and Climate Changes on Global Distribution of Dengue Fever: An Empirical Model." *The Lancet* 360 (9336): 830–34. [https://doi.org/10.1016/S0140-6736\(02\)09964-6](https://doi.org/10.1016/S0140-6736(02)09964-6).
- IPC. 2019. "Afghanistan: Acute Food Insecurity Situation August - October 2019 and Projection for November 2019 - March 2020." IPC Global Platform. <http://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1152215/?iso3=AFG>.
- Islamic Republic of Afghanistan. 2009. "National Mental Health Strategy 2009-2014." <https://www.mhinnovation.net/sites/default/files/downloads/innovation/research/National-Mental-Health-Strategy.pdf>.
- Islamic Republic of Afghanistan. 2015. "Intended Nationally Determined Contribution (INDC)." https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Afghanistan%20First/INDC_AFG_20150927_FINAL.pdf.
- Kavaler, Tara. 2020. "Afghanistan's Mental Illness Emergency." *The Media Line*, 2020. <https://themedialine.org/by-region/afghanistans-mental-illness-emergency/>.

- Kim, Christine, Ghulam Farooq Mansoor, Pir Mohammad Paya, Mohammad Homayoun Ludin, Mohammad Javed Ahrar, Mohammad Omar Mashal, and Catherine S. Todd. 2020. "Review of Policies, Data, and Interventions to Improve Maternal Nutrition in Afghanistan." *Maternal & Child Nutrition* 16 (4): e13003. <https://doi.org/10.1111/mcn.13003>.
- Leao, Izabela, Mansur Ahmed, and Anuja Kar. 2018. *Jobs from Agriculture in Afghanistan*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1265-1>.
- Mack, Thomas J., Michael P. Chornack, and Mohammad R. Taher. 2013. "Groundwater-Level Trends and Implications for Sustainable Water Use in the Kabul Basin, Afghanistan." *Environment Systems and Decisions* 33 (3): 457–67. <https://doi.org/10.1007/s10669-013-9455-4>.
- NEPA. 2009. "National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA)." National Environment Protection Agency (NEPA) Islamic Republic of Afghanistan. <https://www4.unfccc.int/sites/NAPC/Country%20Documents/Parties/napa-afghanistan-final.pdf>.
- NEPA. 2015. "Climate Change and Governance in Afghanistan." National Environment Protection Agency (NEPA) Islamic Republic of Afghanistan. https://wedocs.unep.org/bitstream/handle/20.500.11822/22447/Report_CC_Governance_Afghanistan_EN_v2.pdf?sequence=1&isAllowed=y.
- NEPA. 2017. "Second National Communication (SNC) under the United Nations Framework Convention on Climate Change (UNFCCC) Afghanistan." Islamic Republic of Afghanistan. https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/9486351_Afghanistan-NC2-1-SNC%20Report_Final_20180801%20.pdf.
- NEPA and UNEP. 2016. "Climate Change Science Perspectives." National Environment Protection Agency (NEPA) Islamic Republic of Afghanistan and UNEP. https://postconflict.unep.ch/publications/Afghanistan/UNEP_AFG_CC_Science_perspectives.pdf.
- NSIA. 2019. "Yearbook - Women and Men in Afghanistan 2018." 6. National Statistics and Information Authority, Islamic Republic of Afghanistan. https://www.nsia.gov.af:8080/wp-content/uploads/2019/10/Women-and-men-in-Afghanistan-2018_full.pdf.
- NSIA. 2020. "Afghanistan Statistical Yearbook 2019." National Statistics and Information Authority, Islamic Republic of Afghanistan. <https://www.nsia.gov.af:8080/wp-content/uploads/2020/05/Afghanistan-Statistical-Yearbook-2019-1st-Version.pdf>.

- OCHA. 2019. "Afghanistan Humanitarian Needs Overview 2020." https://reliefweb.int/sites/reliefweb.int/files/resources/afg_humanitarian_needs_overview_2020.pdf.
- Olsson, L, M Opondo, P Tschakert, A Agrawal, SH Eriksen, S Ma, LN Oerch, and SA Zakieldein. 2014. "Livelihoods and Poverty." In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 793–832. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap13_FINAL.pdf.
- Přívvara, Andrej, and Magdaléna Přívarová. 2019. "Nexus between Climate Change, Displacement and Conflict: Afghanistan Case." *Sustainability* 11 (20): 5586. <https://doi.org/10.3390/su11205586>.
- Savage, Matthew, Bill Dougherty, Mohammed Hamza, Ruth Butterfield, and Sukaina Bharwani. 2009. "Socio-Economic Impacts of Climate Change in Afghanistan," 44.
- The World Bank and Ministry of Economy. 2015. "Afghanistan Poverty Status Update Overview." <http://documents1.worldbank.org/curated/en/223041468189527489/pdf/100638-v1-WP-P145128-PUBLIC-Box393238B-Nov-4-2015-WB-PovertyStatusOverview-v6.pdf>.
- UNDP. 2020. "Afghanistan Human Development Report 2020 March: Pitfalls and Promise Minerals Extraction in Afghanistan." http://hdr.undp.org/sites/default/files/2020_nhdr_afghanistan_en.pdf.
- UNICEF. 2019. "Afghanistan Nutrition Cluster 2018 Annual Report." <https://www.unicef.org/afghanistan/media/3911/file/afg-publication-Nutrition%20cluster%20report.pdf%20.pdf>.
- UNICEF. 2021. "Afghanistan Data on Demographics, Health & Infant Mortality." UNICEF DATA. 2021. <https://data.unicef.org/country/afg/>.
- UNICEF. n.d. "WASH: Water, Sanitation and Hygiene Afghanistan." Accessed October 22, 2020. <https://www.unicef.org/afghanistan/wash-water-sanitation-and-hygiene>.
- USAID. 2016. "Climate Change Risk Profile Afghanistan."
- Wagner, Abram L., Mohammad Y. Mubarak, Laura E. Johnson, Julia M. Porth, Jenna E. Yousif, and Matthew L. Boulton. 2017. "Trends of Vaccine-Preventable Diseases in Afghanistan from the Disease Early Warning System, 2009–2015." *PLOS ONE* 12 (6): e0178677. <https://doi.org/10.1371/journal.pone.0178677>.

- WFP. 2017. "Climate Change in Afghanistan: What Does It Mean for Rural Livelihoods and Food Security?" https://postconflict.unep.ch/publications/Afghanistan/Afg_CC_Rural_LivelihoodsFoodSecurity_Nov2016.pdf.
- WHO. 2015. "Protecting Health from Climate Change."
- WHO. 2018. "Health of Refugees and Migrants." World Health Organization (WHO).
- WHO EMRO. n.d. "Health Systems | Programmes | Afghanistan." Accessed December 16, 2020. <http://www.emro.who.int/afg/programmes/health-system-strengthening.html>.
- Women Deliver. 2021. "The Link between Climate Change and Sexual and Reproductive Health and Rights." <https://womendeliver.org/wp-content/uploads/2021/02/Climate-Change-Report-1.pdf>.
- World Bank. 2017. "Disaster Risk Profile: Afghanistan."
- World Bank. 2018. "Strengthening Hydromet and Early Warning Services in Afghanistan : A Road Map." Washington, DC.: World Bank. <https://openknowledge.worldbank.org/handle/10986/31059>.
- World Bank and Asian Development Bank. 2020. "Climate Risk Country Profile Afghanistan." https://climateknowledgeportal.worldbank.org/sites/default/files/2020-12/15396-WB_Afghanistan%20Country%20Profile-WEB.pdf.
- Zaryab, Abdulhalim, Ali Reza Noori, Kai Wegerich, and Bjørn Kløve. 2017. "Assessment of Water Quality and Quantity Trends in Kabul Aquifers with an Outline for Future Drinking Water Supplies," 9.

ANNEX A

NEAR-TERM CLIMATE PROJECTIONS OVERVIEW FOR AFGHANISTAN (2020–2039)¹

Basic climatology. For monthly temperature (average, minimum and maximum) there is a general increase projected of 1.10–1.38°C (RCP2.6)/1.15–1.73°C per month (RCP8.5) by 2020–2039. Averaged across the country, projected changes in monthly precipitation (rain and snow) are negligible. However, looking at the map of the country, it does appear that under low emissions scenario RCP2.6, the north-east (Hindu Kush mountains) of Afghanistan may witness increased precipitation during October to April. This may result in issues as winter precipitation often falls as snow, although more spring rains may be positive for agriculture. Large increases in precipitation in the upper mountainous regions would increase the risk of landslides and flooding.

Climatic extremes. Extreme rainfall event intensity projections offer a heterogeneous picture when comparing RCP2.6 and RCP8.5. In RCP2.6, for most of the extreme rainfall indicators there is a negligible increase or decrease in rainfall amount (mm), with the only clear trend being the difference between south(west) and north/middle(east) Afghanistan, where the maximum amount of rainfall generally slightly decreases in the south(west) and slightly increases or remains stable in the north(east). For RCP8.5 on the other hand, increases in the amount of rainfall during extreme events are more pronounced for both daily and five-day rainfall projections.

In line with the drastic increase in temperature already affecting Afghanistan in the next 20 years, there are shifts projected in temperature extremes. The occurrence of hot days (with a maximum temperature of over 35°C) is projected to increase in frequency by 10.69 to 11.11 days (mean RCP2.6 and RCP8.5). The duration of warm spells and heatwaves will increase too – indicating longer-term exposure to extreme temperatures. Heatwave likelihood will increase slightly in the next 20 years by 3 per cent (1–6 per cent likely range; RCP2.6) to 4 per cent (2–7 per cent likely range; RCP8.5). The duration of warm spells will increase by 9.34–12.09 days (mean RCP2.6 to 8.5). It should be noted that the duration of warm spells is increasing rapidly after,

1 Projections in this Annex are based on the AR5 CMIP5 dataset used by the IPCC, sourced from the World Bank Climate Portal – supplied under the Creative Commons 4.0 license. For more information, please refer to the Methodology section.

with warm spell duration projected to increase by 120 days (mean) by 2100 compared to the historical baseline under RCP8.5.

Agricultural conditions. Due to the warming trend over Afghanistan, the growing season length (note: strictly temperature-related indicator) is expected to increase by 10.26 to 12.82 days. This may offer opportunities in the especially mountainous and other cold-affected regions, although other factors such as water availability are important for the start of the growing season too. While the duration of dry spells (precipitation related) is expected to slightly decrease across Afghanistan under both RCP2.6 (-1 days mean) and RCP8.5 (-3 days mean) – the strong increase in temperatures and evapotranspiration will drastically increase the risk and severity of droughts. The mean drought index is projected to already decrease by -0.52 (-1.04–0.06 likely range; RCP2.6) SPEI to -0.65 (-1.29–0.14 likely range; RCP8.5) by 2039 indicating a strong shift to generally drier conditions. Furthermore, severe drought likelihood increases by 22 per cent (3–50 per cent likely range) (RCP2.6) to 29 per cent (2–57 per cent likely range) RCP 8.5 – a big increase in the occurrence that will challenge Afghanistan’s health, food, water and social systems.

SUMMARY OF KEY POINTS:

1. While rainfall projections remain uncertain, temperature rise in Afghanistan will increase the risk and severity of droughts across the country already in the next 20 years. These droughts will affect an already vulnerable country, particularly in the more arid provinces of Afghanistan. Droughts in Afghanistan have historically had a devastating impact on the livelihoods of rural communities, conflict and food security.
2. Heatwaves and hot days become more frequent and more intense.
3. The rainfall trends across Afghanistan remain uncertain, both general trends, seasonality and extreme events.

ANNEX B

SUMMARY TABLE OF CLIMATE CHANGE IMPACTS ON LIVELIHOODS

CLIMATE CHANGE TRENDS	PHYSICAL IMPACT	IMPACTS ON RURAL LIVELIHOODS MALE/FEMALE	IMPACTS ON URBAN LIVELIHOODS M/F
Annual mean temperature increase	More frequent extreme hot days – extremely hot days more frequent, especially during summer months Increased evapo-transpiration; drought occurrence more frequent	Decreasing productivity of outside work (farming and non-farming); exposure of people, livestock and agricultural products to heat-stress Loss of forest-based livelihoods due to increased wildfire risk Decreased agriculture, livestock and horticulture production, impacting food security and rural incomes Grass and pasture land productivity decline expected, affecting pastoralists and other livestock herders Rural water access issues for people and agriculture Risk of intensification of conflict as competition for land, water and other resources increases	Construction workers and outdoor vendors suffering heat stress; work productivity decline Rural-to-urban distress migration during drought period Food scarcity issues for urban populations Water scarcity might increase Increased vulnerability to floods after periods of drought
	Higher temperatures can lead to rapid spring snowmelt , which is likely to exacerbate the flooding and landslide situation	Agricultural and housing damage in flash floods; infrastructure damage Water security impaired as less groundwater recharge can occur Damage of riverine agricultural lands Soil degradation and loss of natural forest Destruction of river banks, agricultural land and infrastructure	Urban areas along rivers at increased risk of flooding (Kabul, Helmand basin) Risk of long dry spells Food security impaired as agricultural production is damaged

CLIMATE CHANGE TRENDS	PHYSICAL IMPACT	IMPACTS ON RURAL LIVELIHOODS MALE/FEMALE	IMPACTS ON URBAN LIVELIHOODS M/F
More erratic precipitation	Soil water deficit/irrigation water deficit/less groundwater recharge	Agricultural yields lower under soil water deficit	Lower groundwater table, limiting access to potable groundwater and increasing reliance on other water sources (bottled, tanker and open sources).
	Winter precipitation increase (regionally variable)	Timing and intensity of snowfall may negatively affect winter crops and homestead gardens of communities in mountainous and hilly regions	Cold-impacts for people with poorly built shelter; transport of food and other goods impaired
	Spring and summer precipitation decrease (regionally variable)	Changes in precipitation patterns will increase the likelihood of short-term crop failures as well as long-term production declines.	Spring crops in the east, Central Highlands and north, which are rainfed, will be strongly affected by the decrease in spring rainfall
	Heavy rainfall floods – projected increase in extreme rainfall can lead to erosion and hazards like floods and landslides	Loss of life and work Riverine areas may lose 10 per cent of agricultural and garden production; soil degradation and forest loss; impaired water quality (salinization); damage to road networks limits market access	Damage to housing, workplaces, vending goods, markets and transport networks

ANNEX C

EXISTING POLICIES AND STRATEGIES

CLIMATE CHANGE AND ENVIRONMENTAL ACTION DOCUMENTS (2009 ONWARDS)

National Adaptation Plan of Action or NAPA (2009)	2009
National Agriculture Development Framework (NADF)	date unknown
Afghanistan's Climate Change Strategy and Action Plan (ACCSAP)	In process
Strategic National Action Plan for Disaster Risk Reduction (SNAP)	2011
Afghanistan National Renewable Energy Policy (ANREP)	2013
National Water and Natural Resource Management Priority Programme	date unknown
National Environmental Action Plan (NEAP)	date unknown
National Biodiversity Strategy and Action Plan (NBSAP)	2013
National Comprehensive Agriculture Production and Market Development Programme	date unknown
Energy for Rural Development (ERDA)	date unknown

