



CLIMATE-FRAGILITY RISK BRIEF

AFGHANISTAN

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Climate-Fragility Risk Brief: Afghanistan

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The **Climate Security Expert Network**, which comprises some 30 international experts, supports the **Group of Friends on Climate and Security** and the **Climate Security Mechanism** of the UN system by synthesising scientific knowledge and expertise, by advising on entry points for building resilience to climate-security risks, and by helping to strengthen a shared understanding of the challenges and opportunities of addressing climate-related security risks.

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SUMMARY

For the past 41 years, Afghanistan, with its rich history, beautiful landscapes and ethnically diverse population, has endured nearly constant armed conflict, whether in the form of revolution, occupation, extremism or insurgency. This has taken a tremendous toll in human terms, but it has also exerted a powerful brake on the country's development. In 1978 Afghanistan's per capita gross domestic product was higher than that of India, Nepal, Bhutan and Pakistan, and 50% higher than that of China. Today, Afghanistan lags far behind its South Asian neighbours, while China's per capita GDP is more than 18 times greater than Afghanistan's.

Many Afghans are highly vulnerable to the impacts of climate change as a result of their exposure to droughts, floods and other natural disasters as well as their reliance on climate-sensitive livelihoods such as rain-fed agriculture and pastoralism. Meanwhile, the legacy of four decades of conflict has increased Afghanistan's vulnerability to climate change, the impacts of which, in the view of the Government *"have the potential to seriously disrupt the foundation of the country's economy, stability, and food security"* (NEPA & UNEP, 2015). In other words, climate change may be helping to create the conditions for continued violence.

This climate fragility risk brief outlines some of the ways in which climate change threatens long-term peace and stability in Afghanistan: Climate shocks and climate 'headwinds' could worsen poverty, weaken governance and contribute to instability.

1. **More frequent droughts could boost the drug economy.**
2. **Scarcer water and arable land could increase community-level and inter-ethnic conflict.**
3. **International tensions over transboundary water resources could undermine attempts to stabilise the country.**
4. **Afghanistan's rich deposits of minerals used in renewable energy technologies, such as lithium, could become a source of political controversy.**

These threats are not inevitable. They can be addressed and averted if the right measures and policies are put in place. Indeed, the Afghan Government has already worked to integrate climate change throughout its own ministries and policies. In addition to the evident need to improve water and land management and enhance food security (which are important regardless of the security implications of climate change in Afghanistan), there are a number of actions that would specifically address the security risks presented by climate change:

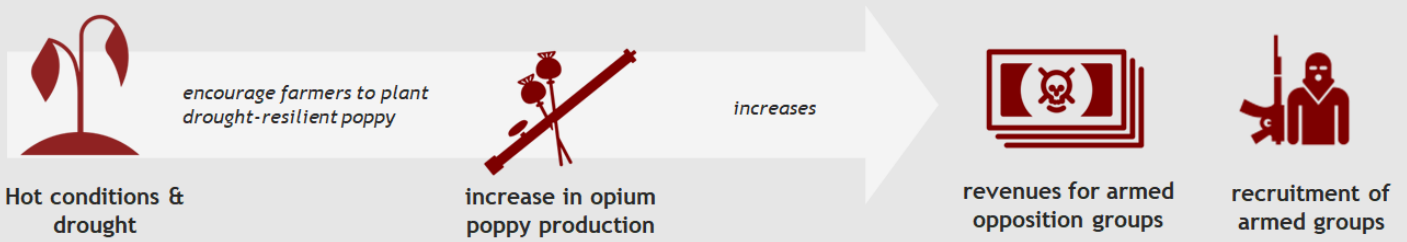
1. **The Afghan Government and the international community should invest in better monitoring systems to understand the complex impacts of climate change and provide data that can inform its responses.**
2. **The Afghan Government should collaborate with neighbouring countries on climate-related challenges, particularly with regards to water.**
3. **The international community and the Afghan Government should ensure that peace negotiations are informed by expertise on the impacts of climate change and resource management.**
4. **The United Nations should build climate security into its mandate in Afghanistan to ensure that the international community addresses these complex interactions in a more holistic and effective way.**

Climate fragility risks in Afghanistan

1. Climate shocks and climate 'headwinds' could worsen poverty, weaken governance and contribute to the recruitment of armed groups.



2. More frequent droughts could encourage the drug economy.



3. Scarcity of water and arable land could increase community-level and inter-ethnic conflict.



4. Reductions in transboundary water resources could escalate regional tensions.



5. Resource politics around green energy minerals could become more strained.





1 SOCIO-ECONOMIC AND POLITICAL CONTEXT

1.1 National context

Afghanistan's landscape is breath-taking. The nearly 653,000 square kilometres of this landlocked country on the frontiers of south and central Asia rise from just 258 metres above sea level in the north-western reaches of the Amu Darya to 7,492 metres at the top of Naushaq in the northeast of the country (Shroder & Ahmadzai, 2016). Nearly two thirds of Afghanistan is mountainous (World Bank, n.d.) and fully a quarter of the country's land area is above 2,500 metres in altitude (NEPA, 2017). As a result, just 7.8 million of the country's 64.9 million hectares are suitable for cropped agriculture, while another 30 million hectares are grass rangelands that can support livestock, mostly sheep and goats (UN, 2013).

Afghanistan is part of the central Asian 'water tower', with five major river basins providing life-giving water that flows out of the country in all directions. The Government estimates that 57 billion cubic metres of renewable surface water is available annually in the form of rainfall and snowmelt. On a per capita basis, this translated into a relatively high figure of 2,775 cubic metres of water per person in 2010 (though population growth means this is now less). But this resource is unevenly shared, both seasonally and geographically. The Panj-Amu river basin, for example, holds almost 40% of the country's available water resources but accounts for only 13% of the irrigated land. Meanwhile, the Northern river basin holds 20% of all irrigated land, but receives only 3% of the country's water (CPHD, 2011). The area received just 676 cubic metres of water per inhabitant annually in 2010, a level that is close to the absolute threshold for water scarcity of 500 cubic metres (CPHD, 2011).

In the nineteenth century, more than half of Afghanistan was covered by a mix of open woodlands (juniper, pistachio, almond, etc) and closed forest (oak, pine and cedar) (UN, 2013). These resources underpinned many livelihoods and ecosystem services by providing fodder, fuelwood for heating and cooking, timber for construction as well as nuts and medicinal plants. Forests and woodlands also slowed run-off and stabilised slopes prone to avalanches. These products and services continue to be important in many rural areas (NEPA, 2017). However, decades of deforestation, over-harvesting and misuse have decimated large tracts of woodland and forest, which today cover less than 2% of Afghanistan (NEPA, 2017).

1.2 Social and demographic context

Afghanistan's population is estimated to be 37 million (World Bank, n.d.), though it is hard to be precise given that the last census was 40 years ago.² The population is diverse, mostly composed of ethnic Pashtuns, Tajiks, Hazaras and Uzbeks. Dari and Pashto are the two official languages but an estimated 40 other languages such as Uzbek, Turkmen, Balochi, Pashayi and Nuristani are spoken by groups across the country, as well as around 200 dialects.

The Afghan population is young—nearly half of all Afghans are under 14 years of age—and growing quickly at a rate of 2.3% a year. This means that the Government needs to boost economic growth to create jobs for the nearly 400,000 people who join the economically active population every year (UN, 2014). In addition, since 2010 nearly 3.2 million Afghan migrants and refugees have returned to the country from abroad (IOM, 2019).

Meanwhile, the Afghan Government has to try to manage one of the fastest rates of urbanisation in Asia: every year nearly 200,000 people move from rural areas to the cities (UN, 2014). The Government predicts that the urban population will double within 15 years (NEPA, 2017), which will put an increasing strain on the provision of services, exacerbate the already-dire air pollution and, in cities such as Kabul, threaten the availability of drinkable water.

Since the turn of the millennium there have been important improvements in literacy and health. Between 2000 and 2011 the ratio of children in primary school (known as gross primary enrolment) jumped from 19% to 97% (UN, 2014). As a result, more than half of 14- to 25-year olds can now read and write. Meanwhile, life expectancy at birth rose from 49.9 years in 1990 to 64 years in 2017 (UNDP, 2018). In large part this is a result of improved primary health care, often supported by international aid and provided by non-governmental organisations. For example, Afghanistan's under-5 mortality rate dropped by nearly 80% from 257 per 1,000 live births in 2000 to 55 per 1,000 live births between 2010-2015 (NEPA, 2017).

But despite progress in some areas, too many Afghans still experience a precarious existence of grinding poverty. Afghanistan languishes near the bottom of the Human Development Index (168th out of 189 countries, UNDP 2018). Poverty is widespread and growing: rates have steadily grown in Afghanistan over the last decade, particularly in rural areas, where it rose from 38% in 2011/2 to 55% in 2016/7 (Bjelica and Ruttig, 2018).

Meanwhile, despite huge quantities of foreign aid, food insecurity has increased over the past decade: 39.1% of the population lives below the target of meeting the Costs of Basic Needs (i.e. the minimum cost of obtaining 2,100 calories per day)

² Note that the Government of Afghanistan's Central Statistics Organization has a significantly lower estimate for the population: 29.1 million in 2017 (HDX, n.d.).

(NEPA, 2017). Finally, Afghanistan is still one of the most difficult countries in the world in which to be female: girls and women are particularly vulnerable as a result of sexual and gender-based violence, child marriage, lower access to education and health services and so on. Afghanistan's Gender Development Index³ is the second lowest in the world (UNDP, 2018).

1.3 Economic context

Afghanistan's turbulent modern history has cost the country greatly in terms of lost development opportunities. In 1978 Afghanistan's per capita gross domestic product was higher than that of India, Nepal, Bhutan and Pakistan, and 50% higher than China's. Since then its development trajectory has been markedly different to many of its neighbours. Today Afghanistan lags far behind its South Asian neighbours, while China's per capita GDP is more than 18 times greater than Afghanistan's.

The informal economy makes up 80% to 90% of economic activity in the country (UN, 2014). Agriculture is the foundation of Afghanistan's economy and supports the majority of livelihoods in rural areas. In 2016 agriculture was a source of income for 61% of the country's population and accounted for 44% of all employment (WFP, UNEP and NEPA, 2016). Unsurprisingly, the country's GDP rises and falls in step with the performance of its agricultural sector (GoIRA, 2017).

It is estimated that only 2.5 million hectares, or about 3.8% of the country's land area, are irrigated and regularly farmed (and only 10% of that with modern irrigation methods). Afghanistan's main irrigation delivery systems - rivers, *karez* and springs - depend on the amount of snow that falls in the Hindu Kush mountains or the Central highlands the preceding winter (WFP, UNEP and NEPA, 2016). Another 1.1 million hectares are rain-fed and farmed opportunistically, depending on the availability of rain and snowfall (NEPA, 2017).

Meanwhile, livestock production contributes more than 50% of agricultural GDP. Over the past 30 years the livestock populations have fluctuated between 3.7 million and 5 million cattle and 16 million and 30 million sheep and goats (NEPA, 2017), a livestock population that has in some places led to severe land degradation as a result of overgrazing.

Afghanistan is far from economically self-reliant. For years it has been an extreme outlier in terms of its dependence on overseas development assistance, as a result of its strategic significance and the heavy presence of international forces and organisations in the country. In 2019 the World Bank estimates that half the government's budget is funded by aid, even as security costs rise and aid flows fall (World Bank, 2019c).

Despite, or perhaps because of, this large flow of aid, corruption remains a serious problem in Afghanistan: the country ranks 172nd out of 180 in Transparency International's corruption perceptions index (TI, 2018). In a 2014 survey, corruption was cited by Afghans as one of their top three problems, along with security and employment (UN, 2014).

³ The Gender Development Index is based on the sex-disaggregated Human Development Index, defined as a ratio of the female to male HDI. It measures gender inequalities across health, education and command over economic resources (UNDP, 2018)

1.4 Security situation

Afghanistan has been cursed by violent conflict of one sort or another for more than four decades: entire generations of Afghans have grown up knowing only a country that is at war. This has exacted a terrible cost in terms of lives lost and people injured. A 2015 study estimated that 92,000 Afghans were killed or injured in Afghanistan as a direct result of war-related violence between 2001 and 2014 (Crawford, 2015). The toll has increased since then: the UN estimates that in 2017 and 2018 more than 10,500 civilians were killed or injured as a result of the violence (UNAMA, 2019). Given that this number excludes security force personnel and militants who were killed and injured, this is not a reflection of the total toll in death and injury from the violence.

Meanwhile, violence has become normalised as a feature of everyday life. It extends beyond headline-grabbing attacks by insurgents. Disputes over natural resources, such as access to agricultural land and grazing pastures or the division of vital irrigation water, can and do turn violent. According to one survey cited by the UN, while 12% of the population had experienced attacks by militants, 41% had suffered from land disputes (UN, 2014).

Over the past years the reach and influence of the Taliban and other armed opposition groups has been expanding: they now threaten more two thirds of the country to some degree (Sharif and Adamou, 2018). The reach of the central government is weak in many areas, some of which are essentially left to largely govern themselves. The country is also characterised by a number of deep and abiding divides: between rural and urban areas, between government-controlled and militant-controlled areas and so on.

However, after 18 years, Afghanistan is falling out of the international headlines. Already there has been a steep drawdown in the international military and civilian presence. Meanwhile, the Trump administration has begun negotiating directly with the Taliban in an effort to come to a political settlement that would permit the complete withdrawal of American troops. In September 2019, nine former US ambassadors and envoys sent an open letter warning that the US's current approach threatens to bring back "total civil war" (Dobbins et al, 2019). Clearly, there are widely different views about the future of the country. It is hard to envisage the shape of a political settlement that would be acceptable to all sides. Nevertheless, if a political settlement is found, then this would radically affect the security and development trajectories of the country.

2 CLIMATE CONTEXT

2.1 Current climate situation

Afghanistan is a mountainous country with an arid climate that is characterized by hot summers and cold winters (NEPA, 2017). Afghanistan's dramatic topography creates multiple micro-climates with temperatures as well as rain and snowfall that vary hugely across the country: from the extremely cold (-46°C is the record) in the north central mountains to the oppressively hot (+51°C) in the southwestern deserts (NEPA & UNEP, 2009).

It is important to recognise that climate change is not a future prospect in Afghanistan: the climate is already changing faster than the global average. Since 1950 Afghanistan's mean annual temperature has increased by 1.8°C (NEPA, 2017). The warming has been most pronounced in the South (2.4°C), while the central

Highlands and North have experienced temperature increases of 1.6°C and 1.7°C, and most of the East has warmed by 0.6°C (NEPA, 2017).

This is having very tangible impacts. The snowpack is melting three weeks earlier than previously (NEPA, 2017). The area covered by glaciers has shrunk by 13.4% since 1990 (ICIMOD, n.d.). Some of the country's smaller glaciers have disappeared entirely (Shroder & Ahmadzai, 2016). Heavy rainfall events have increased by between 10% and 25% over the past 30 years (WFP, UNEP and NEPA, 2016).

Droughts, meanwhile, are occurring every three to four years rather than every seven years (NEPA, 2017). Analysis of levels of snow and rainfall shows that while annual precipitation has not changed significantly overall, spring rain has decreased while precipitation during winter has increased. Between 1950 and 2010 spring precipitation in the Central Highlands fell by 40% (NEPA, 2017). This drop in the critical spring rains seems to have weakened the otherwise positive effects of a growing season that is now, on average, 15 days longer than it used to be (WFP, UNEP and NEPA, 2016).

2.2 Climate vulnerability

There is a grim irony in the fact that Afghanistan has been an almost negligible contributor to global warming—in 2013, the average Afghan produced just 2.028 tonnes of CO₂ equivalent, less than a third of the global mean (NEPA, 2017)—but Afghans are left highly vulnerable to the impacts of climate change.

This is partly a function of geography: the mountainous, arid terrain means that millions of people are exposed to hazards such as floods, droughts, avalanches and landslides. In fact, Afghanistan is 26th in the list of most vulnerable countries in the 2019 Climate Risk Index, which indicates a level of exposure and vulnerability to extreme events (Eckstein et al, 2018). But it is also a result of the wide reliance on livelihoods—such as rain-fed agriculture and livestock herding—that are highly susceptible to fluctuations in the climate.

Meanwhile, the legacy of 40 years of conflict has increased Afghanistan's vulnerability to climate change. Conflict and vacuum of governance that it tends to create, has damaged or destroyed large parts of Afghanistan's transport infrastructure, water and energy facilities and led to serious deforestation (UN, 2013). Domestic energy production is at roughly the same level as it was just prior to the invasion of the Soviet Union in 1979 (NEPA, 2017). Critical water infrastructure has been destroyed or has fallen into disrepair. This means that the country has the lowest per capita water storage capacity in the region (140 cubic metres per person).

Climate projections: Afghanistan



Projected temperature increase:
1°C - 2°C by 2050



Drier conditions; increased frequency of drought



Changes in rainfall and snowmelt patterns, increased flash flood risk

Key climate impacts:

Agriculture

- Increased soil erosion
- Increased crop losses/failure
- Livestock migration/starvation



Water resources

- Reduced river flows
- Reduced water supply
- Increased risk of flash floods



Governance & conflict

- Increased competition for resources, including water
- Driver of internal displacement



Human health

- Increased risk of food insecurity
- Increased risk of mortality and injury from natural resources



Energy and infrastructure

- Reduced hydropower potential
- Disaster-related infrastructure damage



In a country that typically pendulums between drought and flood, this reduces the ability to retain and harness water when it is available, and leaves the country more vulnerable to drought (NEPA, 2017). Likewise, the loss of thousands of hectares of woodland and forest has denied large areas the important ecosystem services that trees can provide: slope stabilisation on avalanche-prone slopes, slowed run-off from rain and more diverse livelihood options.

2.3 Climate change projections and impacts

Climate models provide a sense of what can be expected by 2050 under different greenhouse gas emissions scenarios. RCP⁴4.5 is a relatively optimistic scenario in which Afghanistan would continue warming by roughly 1.5°C up to 2050, with additional warming up to 2.5°C by 2100 (NEPA, 2017). By contrast, a higher-emissions scenario (RCP8.5) suggests faster warming of up to 3°C by 2050 with a further rise up to 7°C above current temperatures by the end of the century (NEPA, 2017).

For both scenarios, the warming is expected to occur throughout the year and across the country, but to be particularly pronounced in the Central Highlands. Winter snowfall is expected to decrease across the country, which would reduce the flow of river-borne snowmelt, curtailing irrigated agriculture.

Spring rainfall, which is particularly important for rain-fed agriculture, is expected to decrease across much of the country, except in the northeastern Wakhan Corridor and a small strip along the southern border. Somewhat counterintuitively, under the high-emissions scenario, average rainfall and the growing season could increase across much of the country (annual quantities of rainfall would stay largely the same under a lower-emissions scenario). However, the positive effect of this would likely be tempered by higher rates of evapotranspiration, more frequent ‘deluge’ events (the models predict that heavy precipitation events could increase by 5% or more in northeastern and southeastern areas) and reduced spring rainfall for both scenarios (WFP, UNEP and NEPA, 2016).

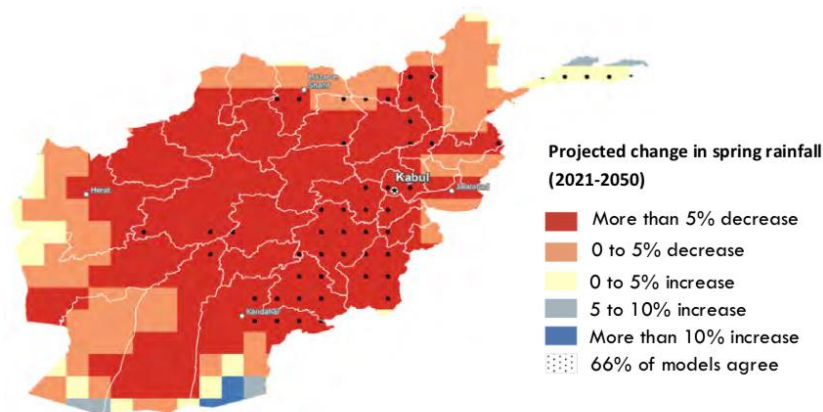


Figure 1: Project impacts on spring rainfall, 2021-2050 (NEPA, WFP & UNEP, 2015)

⁴ A Representative Concentration Pathway (RCP) is a greenhouse gas concentration (not emissions) trajectory adopted by the IPCC for its fifth Assessment Report (AR5) in 2014. RCP4.5 is an optimistic scenario which assumes global greenhouse gas emissions rise to 2040 followed by a stabilisation in emissions. RCP8.5 assumes continuous rise in greenhouse gas emissions.

2.4 Policy and institutional context

Article 15 of the Constitution of the Islamic Republic of Afghanistan (2004) enshrines the protection of the environment as the responsibility of the state. In 2007 the Government approved the Environment Law, which established the regulatory framework for the sustainable use and management of Afghanistan's natural resources. The National Environmental Protection Agency (NEPA) is an independent institutional entity responsible for coordinating, monitoring, conserving and rehabilitating the environment, and the implementation of the Environment Law (NEPA, 2017).

The Government of Afghanistan has been endeavouring to integrate approaches to climate change through its domestic structures with inter-ministerial coordination managed through a National Climate Change Committee (NEPA, 2015). The Government has made steady progress towards mainstreaming climate change into national planning mechanisms and approaches (NEPA, 2017). The country has also played an active role in international climate negotiations.

Afghanistan completed its National Adaptation Programme of Action on Climate Change (NAPA) in 2009 (NEPA, 2009), submitted its first Intended Nationally Determined Contribution in 2015 (NEPA, 2015) and its Second National Communication in 2017 (NEPA, 2017). Climate change is recognised as a serious threat to Afghanistan in the Afghanistan National Peace and Development Framework, the Government's five-year (2017-2021) strategic framework for achieving stability and self-reliance, which sets out the country's short- and long-term development plans (GoIRA, 2017).

The Government identified seven priorities for adaptation as part of its Second National Communication to the UNFCCC. These are:

- I. Enhancing adaptive capacity and resilience and disaster risk reduction,
- II. Integrating climate change into national planning processes,
- III. Promoting economic development through the sustainable management of environmental resources and increased access to modern forms of efficient and sustainable energy,
- IV. Building technical capacity in governmental institutions,
- V. Adaptive and integrated land and water management,
- VI. Improving water access in rural communities,
- VII. Raising public awareness in Afghanistan (NEPA, 2017).

The Government estimated that its adaptation plans would cost \$10.785 billion between 2020 and 2030 (NEPA, 2015).

3 CLIMATE-FRAGILITY RISKS

In the opinion of the Government, the impacts of climate change “*have the potential to seriously disrupt the foundation of the country’s economy, stability, and food security*” (NEPA & UNEP, 2015). This changing climate presents a number of challenges (i.e. reductions in spring rainfall), but also a few potential opportunities (i.e. longer growing seasons).

The risks posed by climate change to Afghanistan’s development are often overshadowed by the more immediate and visible security challenges faced by the country. However, there is a growing body of evidence globally that shows that climatic changes can exacerbate social tensions, increasing the risk that conflict might break out, or that a conflict may persist where it otherwise might have died down.

This climate fragility risk brief tries to understand what climate change might mean for Afghanistan’s security situation between now and 2030.⁵ It presents a series of ‘climate-fragility risks’ which have been identified on the basis of a survey of existing literature on climate security, inputs from experts inside and outside of the country, and an analysis of the future projections of climate change set against the political, social and economic context of Afghanistan.

Given the many drivers of conflict that are already at work in Afghanistan, it is important not overstate a causal link between climate change and conflict. Nevertheless, there are a range of climate-linked sources of potential fragility that policy makers in Afghanistan and the international community should, at the very least, be aware of:

- Climate shocks and climate ‘headwinds’ could worsen poverty, weaken governance and contribute to instability.
- More frequent droughts could boost the drug economy.
- Scarcer water and arable land could increase community-level and inter-ethnic conflict.
- International tensions over transboundary water resources could undermine attempts to stabilise the country.
- Afghanistan’s rich deposits of minerals used in renewable energy technologies, such as lithium, could become a source of political controversy.

3.1 Climate shocks and climate ‘headwinds’ could worsen poverty, weaken governance and contribute to instability.

The first risk is that the cumulative social impacts of climate change—affecting people’s livelihoods, changing where Afghans are able to live and increasing the impact of natural disasters—slow the country’s development and put increased strain on the government’s ability to provide services. In essence, climate change brings greater uncertainty and more extreme weather into an already difficult security and political context.

In March 2019, the Red Cross reported that more than one in four Afghans faced acute food insecurity as a result of devastating floods that followed a three-year drought (IFRC, 2019). This type of situation may worsen in future. The increasingly frequent droughts and floods anticipated under all climate change scenarios, along with accelerated desertification and reduced water flows in the country’s glacier-fed rivers, would threaten rural livelihoods, undermine the national economy and weaken the country’s ability to feed itself (WFP, UNEP & NEPA, 2016). In 2014, it was estimated that nearly a third of the total land normally available for irrigation

⁵ Beyond 2030 forecasting of such a complex social phenomenon as violent conflict becomes an increasingly tenuous exercise

was left unfarmed, mostly due to a lack of available water (WFP, UNEP and NEPA, 2016).

If climate change contributes to more frequent natural disasters while undermining rural livelihoods it would worsen poverty, undermine job creation, imperil food and water insecurity, and lead to population displacement, with increasing numbers of rural residents moving to cities. Increased forced displacement within Afghanistan could, in turn, exacerbate social divisions, intensify anti-migrant sentiment and trigger conflicts over resources such as land and water in areas where migrants are moving, especially in rapidly growing urban areas (Dhanasree, 2019).

The Government, for example, estimates that climate change will expose 10 million urban residents to depleted aquifers, more erratic rainfall, floods, more frequent storms and extreme temperature fluctuations (NEPA & UNEP, 2015). At the same time, overcrowding, poor planning, inadequate infrastructure, and indiscriminate waste disposal are stressing Afghan cities' environment and resources, and undermining their capacities to withstand adverse environmental change.

The Government of Afghanistan is already struggling to provide basic services for its people, despite some of the highest levels of foreign aid in the world. The impacts of climate change could add to this challenge by straining government services, fuelling lawlessness and undercutting the Government's legitimacy.

3.2 More frequent droughts could encourage the drug economy.

The second risk is that increasingly arid, hot conditions as a result of climate change could fuel the drug economy, by encouraging farmers to plant more opium poppy. Poppy is a drought-resilient, water-efficient crop, the product of which is both easily transportable and profitable.

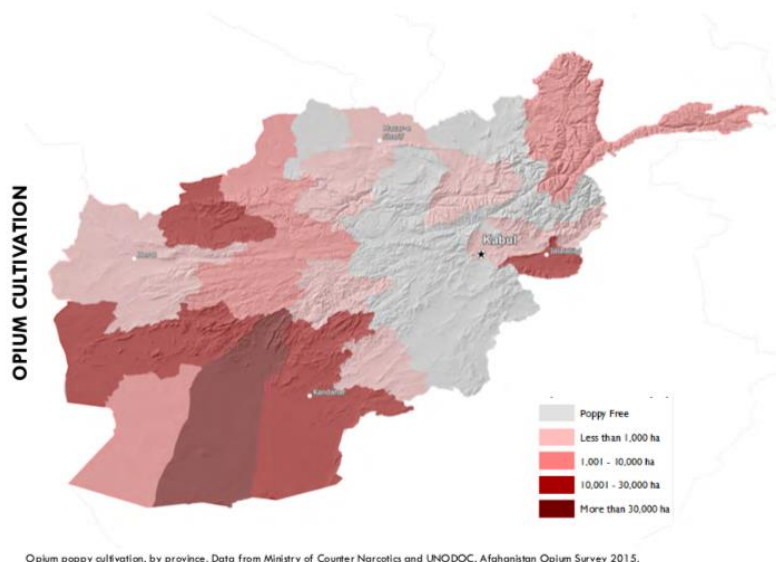


Figure 2: Opium cultivation, 2015 (NEPA, WFP & UNEP, 2015)



Afghanistan is the biggest producer of opium in the world, with the 2017 opium trade worth between \$4.1 billion and \$6.6 billion, or between 20% and 32% of GDP, an amount exceeding all of Afghanistan's legal exports (UNODC, 2018). Studies have found a link between reduced rainfall or irrigation water and an increase in poppy production in Afghanistan, which may in turn have helped to finance and fuel the insurgency (Parenti, 2015).

If alternative crops become more difficult to produce as a result of higher temperatures, reduced spring rainfall, or a reduction in irrigation water, then poppy production will become an increasingly attractive crop for many farmers in rural areas. These conditions are a breeding ground for criminal organisations and terrorist groups, by increasing revenues to armed opposition groups, incentivizing efforts to repel government control in drug producing areas and encouraging corruption among government employees in the provinces (Parenti, 2015 & Dhanasree, 2019), further adding to the 'headwinds' described above.

3.3 Scarcer water and arable land could increase community-level and inter-ethnic conflict.

Afghanistan already experiences significant amounts of low-level, violent conflict at the community and inter-ethnic levels over access to arable land, pastoral grazing areas and irrigation water. Research published in 2014 suggested that, while 12% of the population has experienced attacks from militants and insurgents, 41% have suffered from land disputes (UN, 2014). Meanwhile, 93% of all disputes in the traditional dispute resolution systems relate to conflicts over land and water (UN, 2014).

Local-level disputes over scarce water and productive land could be further energized in the context of increasingly scarce resources as a result of climate change, contributing to local violence and becoming instrumentalized in the context of armed opposition groups, opportunistic politicians and existing ethnic tensions.

3.4 Reductions in transboundary water resources could escalate regional tensions

Afghanistan is part of the Central Asia water towers; all of the five major river basins in Afghanistan discharge their water into neighbouring states, several of which are much more water stressed than Afghanistan (UN, 2013). Several of the large rivers that rise in Afghanistan, including the Helmand river and the Amu Darya, have already begun drying up before they reach their historical destinations, as a result of over-use likely coupled with climate change (Shroder & Ahmadzai, 2016). Appreciating the hydrological linkages between Afghanistan and its neighbours is an important step in understanding their political interconnections (Shroder & Ahmadzai, 2016).

Pakistan, Iran, Uzbekistan, Turkmenistan and Tajikistan all rely, to a greater or lesser degree, on the water that comes out of Afghanistan. China also shares a short border with Afghanistan, but no water moves across it. These countries all have arid or semi-arid climates and rely heavily on irrigated agriculture for their food production and security. Collectively they irrigate over 38 million hectares of land, almost twice as much as in the entire United States (Shroder & Ahmadzai, 2016).

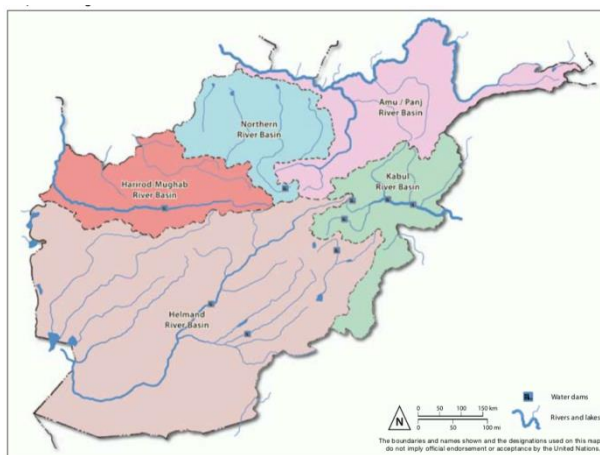


Figure 3: Afghanistan's river basins

Afghanistan's water resources are grossly underdeveloped relative to its neighbours. Years of conflict have restricted the construction of water-related infrastructure, reducing the amount of water that Afghanistan itself can retain and utilize, to the benefit of its neighbours. To meet its growing population's need for food and energy, the country will need to harness this water more fully, which will have inevitable impacts on its downstream neighbours. For example, Afghanistan is thought to have considerable untapped potential for hydropower development (estimated at 23,310 megawatts) (NEPA, 2017).

Keeping that water under-utilized in an under-developed Afghanistan is clearly an advantage to neighbouring countries (Shroder & Ahmadzai, 2016). Therefore, if climate change further reduces critical water supplies in neighbouring states, this could provide incentives for them to play peace spoiler roles so as to forestall investment in water infrastructure. There are reports of this already taking place. For example, according to some observers, Iran provided financial support to armed insurgent groups that were directly targeting the construction of the Kajakai Dam on the Helmand river (UN, 2013).

3.4 Resource politics around green energy minerals could become more strained.

The final concern is not so much a 'climate risk' but rather the possible unintended consequences of a major global shift to green energy storage technologies as a result of a shift away from fossil fuels. This would reshape global resource politics, reducing the strategic importance of oil- and gas-producing states and increasing

that of countries where critical “green energy minerals” are found (Church and Crawford, 2018).

One such raw material is the metal lithium, which is required for the lithium-ion batteries in smartphones and electric vehicles. Afghanistan has major supplies of lithium: a research paper for the Pentagon memorably dubbed the country, “The Saudi Arabia of Lithium” (UN, 2013). These assets could prove to be a double-edged sword.

On the one hand, lithium could become an important source of government revenue and jobs, helping to move the country away from its reliance on international aid. The price of lithium increased eight-fold between 2002 and 2018, with a metric tonne of lithium now selling for more than \$16,000 (Metalary, n.d.). Lithium production, which requires significant investment, could also provide incentives for stability, as no company is likely to make a major financial commitment in the middle of a war zone.

On the other hand, however, mining operations for copper (Aynak) and iron ore (Hajigak) have already proved highly contentious in Afghanistan; there are doubts about the viability of the investments and the integrity of the process through which the contracts have been awarded (UN, 2013). There are concerns that an uptick in mining could increase corruption, generate tension over who gets to control the revenues, and lead to social and environmental harm that could alienate local communities. In other words, an increase in mining in Afghanistan risks triggering the type of resource curse that has afflicted many other countries that depend on natural resources.

4 ENTRY POINTS TO REDUCE CLIMATE-FRAGILITY RISKS

Mostapha Zaher, the former Director General of the National Environmental Protection Agency, argues that the fight against climate change in Afghanistan should be taken as seriously as the fight against insurgents. “Terrorism is not going to be lingering here for ever”, he says, “but climate change is an ongoing death sentence” (Rasmussen, 2017).

Among many other challenges, the country needs to simultaneously build resilience to future climate change while trying to recover from past conflicts. The risks described above are not inevitable: Afghans have time and again showed their resilience and ingenuity in the face of seemingly daunting odds. These risks can be addressed and averted if the right measures and policies are put in place. The following are some ideas of what can be done:

4.1 Improve water and land management

Afghanistan has limited fertile land and usable water, which it needs to harness as effectively and efficiently as possible in order to feed its people and grow its economy. Climate change is predicted to impact the availability of water at critical times (especially the spring rains) and could accelerate land degradation and desertification. This is already well understood by the Government: \$10.25 billion of the predicted ‘price tag’ for climate change adaptation between 2020 and 2030 relates to the improvements in land and water management that will help to support rural populations and bolster the country’s food security (NEPA, 2015).

Consequently, it is important that the Government, with the support of the international community, scales up its efforts to improve the management of Afghanistan’s precious land and water resources. This would enable the country to ‘do more with less’ by investing in water and irrigation infrastructure to better utilize the country’s shrinking and unevenly distributed water resources, by focusing on reforestation and better land management to slow land degradation and desertification.

4.2 Develop data and monitoring

A second area is to invest in better monitoring systems to understand the complex impacts of climate change and how the trends are evolving, and provide data that can inform appropriate responses. What is monitored stands a better chance of being well managed. The Government itself admits that a lack of environmental and climate data makes it hard to develop comprehensive climate projections (NEPA & UNEP, 2015). This is an area that has already been identified as a need by the Government, which estimated that \$200 million would need to be spent by 2020 and 2030 on a system to monitor and assess vulnerability and adaptation to climate change (NEPA, 2015).

4.3 Strengthen regional cooperation

Afghanistan is located in a difficult, strategically important neighbourhood: it needs supportive neighbours. A third entry point is to bolster cooperation mechanisms across the region. One issue over which there are strong joint interests is the water that flows across Afghanistan's borders. If managed carefully, the shared threat of climate change could become a positive way of building closer links across the sub-region. There have been attempts to develop international water treaties with Afghanistan's neighbours, but many of these have progressed slowly and Afghanistan has been excluded from some regional mechanisms (UN, 2013).

Afghanistan and its Central and South Asian neighbours should work to include Afghanistan fully in a network of regional river basin management systems. Although Afghanistan's neighbours may have benefitted over the short term from Afghanistan's under-utilisation of its water resources, they should recognise that they have a vested interest over the long-term in the clarity and confidence that negotiated agreements over transboundary water flows would bring. Joint river basin management could be a powerful way of driving better overall water management.

Afghanistan and its neighbours should aim to design agreements that are 'climate proof' by ensuring that the mechanisms for allocating water are adaptive and flexible, taking into account the fluctuating flows that future climate change may entail (Dhanasree, 2019). This can be done by developing mechanisms to deal with extreme weather events, ensuring dispute resolution mechanisms include climate variability as a factor to avoid conflicts, and establishing opportunities for data sharing and joint scientific assessments across borders.

4.4 Bring the environment into peace negotiations

A fourth entry point is to ensure that expertise on environment and natural resource issues are included in peace negotiations with armed opposition groups as well as any new constitutional process that might occur as a result of a peace deal (such as the drafting of a new Constitution). Natural resource challenges around land, water, extractives and forests underlie a number of the causes for conflict that the country is tackling (UN, 2013).

Consequently, it is important that creative solutions are on the table that can reconcile the different interests that protagonists have, whether at an individual, community or country level (UNDP & UNEP, 2015). Examples of the sort of measures that can be taken include training so that the negotiators better understand the facts, setting up joint task forces to agree on contentious issues, and harnessing collaboration over environmental issues as a confidence-building measure. There is a growing body of experience on these sorts of agreements around the world, and so international partners such as the UN might be helpful in terms of facilitating such meetings and providing creative options to the negotiators.

4.5 Build climate security into the UN's mandate in Afghanistan

The climate fragility risks outlined above could hamper the achievement of all five areas of the UN's Development Assistance Framework for Afghanistan: equitable economic development; basic social services; equity and investment in human capital; justice and rule of law; and, accountable governance (UN, 2014). Consequently, it is important that the international community in general, and the UN in particular, takes these climate security risks into account when designing aid and stabilization interventions. While by no means the biggest player, the UN can play a critical role in Afghanistan as an overall facilitator of peace, an integrator of the Sustainable Development Goals and a provider of ideas and expertise.

So far, the UN Security Council has included language related to climate security in 11 separate UN Security Council Resolutions.⁶ Establishing a similar link in the mandate of the United Nations Assistance Mission in Afghanistan (UNAMA) would help to reframe and reshape the UN's work in Afghanistan. This should go beyond UNAMA, ensuring that all the UN agencies, funds and programmes operating in the country recognize that the impacts of climate change have a bearing on Afghanistan's long-term stability, make sure that they build climate and natural resources issues into preventive approaches and early-warning mechanisms, and explore ways to support confidence-building measures with neighbouring states.

⁶ #2242 (October 2015), #2349 (March 2017), #2409 (March 2018), #2423 (June 2018), #2429 (July 2018), #2431 (July 2018), #2448 (December 2018), #2457 (February 2019), #2461 (March 2019), #2472 (May 2019), #2480 (June 2019)

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