



CLIMATE CHANGE IN AFGHANISTAN

WHAT DOES IT MEAN FOR RURAL LIVELIHOODS AND FOOD SECURITY?



FORWARD

Climate change is real. I invite anyone who may still doubt this to visit Afghanistan, and witness first-hand the alarming melting of the Pamir/Hindu Kush glaciers in the country's north-east. Afghanistan has already been, and will continue to be, heavily affected by the negative impacts of climate change. And it is the most vulnerable people—particularly subsistence farmers and pastoralists who depend on natural resources for their survival – who are suffering most.

Recognizing this, the Islamic Republic of Afghanistan has made many notable achievements towards addressing climate change over the past decade. At the national level, Afghanistan has successfully developed a number of policies and plans that target its most urgent climate change priorities and needs, including the National Adaptation Programme of Action (NAPA), as well as effectively mainstreamed climate change issues into a number of existing governance mechanisms. And, at the local level, Afghanistan's many institutions and partners are working directly with communities and civil society groups to build grassroots adaptive capacity.

More recently, at the Paris Climate Conference (COP21) held in December 2015, the Islamic Republic of Afghanistan committed to pursuing a Low Emission Development (LED) path as part of its global commitment to limiting greenhouse gas emissions. This commitment is all the more noteworthy considering the many competing development needs and challenges facing Afghanistan today, as well as the country's high level of vulnerability to the adverse impacts of climate change.

In the lead up to the 22nd session of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC), the Islamic Republic of Afghanistan together with the World Food Programme (WFP) and the UN Environment Programme (UNEP) has prepared this technical report, "*Climate Change in Afghanistan: What Does it Mean For Rural Livelihoods and Food Security?*"

It is my great pleasure to launch this report and I look forward to seeing it being used, and referenced in the coming years. There is a lot of work to do for Afghanistan to be able to adapt and respond on climate action, and these technical reports and detailed scientific analyses help immensely in enabling better responses, and ultimately providing support to our people for a better life.

Mostapha Zaher

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Photo: NEPA/ Mostapha Zaher/ Wakhan District, Badakhshan

EXECUTIVE SUMMARY

Climate change in Afghanistan is not an uncertain, “potential” future risk but a very real, present threat— whose impacts have already been felt by millions of farmers and pastoralists across the country. In this report, we show how drought and flood risks have changed over the past thirty years, and what impact this has had on rural livelihoods and food security in the country. The aim is to inform national-level prioritization of areas and livelihoods groups for climate change adaptation and disaster risk reduction programmes.

The poorest people—particularly subsistence farmers and pastoralists who are often already living on marginal land—are also those who suffer most from climate change. Yet it is difficult to get an overall, national-level understanding of where the impact of climate change on food security and livelihoods are most worrying and need to be addressed most urgently.

Climate analyses tend to show which areas have seen—or are expected to see—the biggest change in rainfall, temperature or other physical climate parameters. However, such climate information on its own tells us little about what impact these changes will actually have on poverty and food security—as this depends on what livelihoods people depend on for food and income.

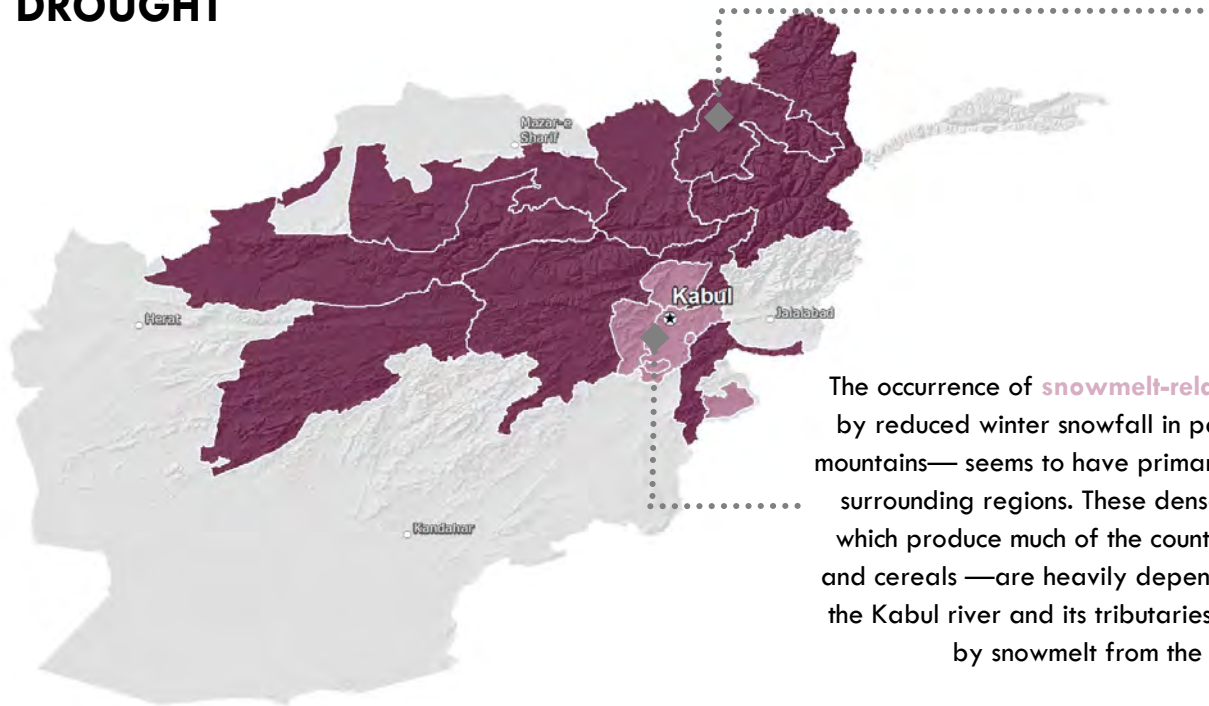
The guiding question for this analysis was therefore not “where have droughts or floods become more frequent and severe?”, but rather “where has the impact of droughts and floods on livelihoods—and ultimately food security—been most severe?” To answer this question, we combine climate information with livelihood zoning to obtain an overview of which areas and population groups are most vulnerable to climate change.

We focus on the four climate hazards which pose the largest risk to livelihoods in Afghanistan: drought caused by reduced spring rainfall, drought caused by declining river flows due to reduced spring-time snowmelt in the highlands, floods caused by increased heavy spring rainfall, and riverine floods caused by heavier and faster upstream snowmelt in the highlands.

For each of these four hazards, we mapped out where it had become more severe over the past thirty years, as well as where livelihoods were most sensitive to it. We then overlaid these two maps to highlight “hotspot areas”—i.e. livelihood zones where each of these hazards has had the largest impact on livelihoods and food security, over the past thirty years. Results are shown on the page opposite.

We also use climate models to look at how the risk associated with these four hazards is expected to change in the next thirty years—keeping in mind the high level of uncertainty associated with such climate projections.

DROUGHT

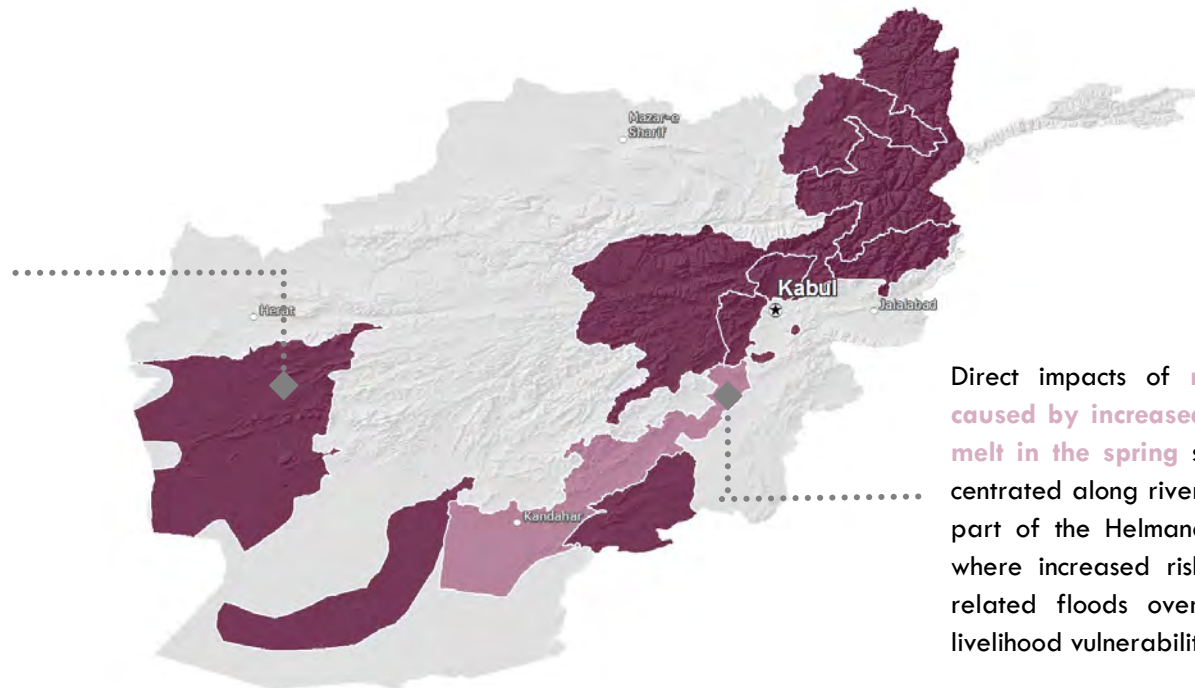


While the climatic risk of **rainfall-related drought** has increased over the past thirty years across most of the country, the main areas of concern in terms of negative impacts on food security are concentrated in the north and parts of the Central Highlands. These are areas where the dominant livelihoods—rainfed farming and pastoralism—are highly dependent on rainfall, and where the observed decline in spring rainfall therefore has a direct impact on households’ ability to produce food and earn income.

The occurrence of **snowmelt-related drought**—caused by reduced winter snowfall in parts of the Hindu Kush mountains—seems to have primarily affected Kabul and surrounding regions. These densely populated areas, which produce much of the country’s vegetables, fruits and cereals—are heavily dependent on irrigation from the Kabul river and its tributaries, which are partly fed by snowmelt from the Hindu Kush.

FLOODS

Negative impacts of **floods caused by heavy spring rainfall** have been felt across a range of different livelihood zones – from the mountainous areas in the north-east and centre of the country, to the hilly border areas in the south-east, all the way down to the flat, arid southern provinces. These are zones where heavy precipitation events have increased by 10 to 25% in the past thirty years, and where livelihoods are dominated by agriculture and pastoralism—both highly sensitive to flooding.

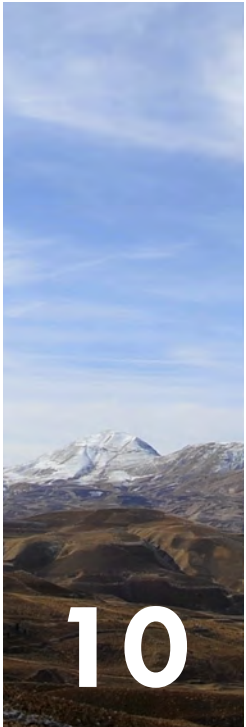


Direct impacts of **riverine floods caused by increased spring snowmelt in the spring** seem to be concentrated along rivers in the eastern part of the Helmand river basin—where increased risk of snowmelt-related floods overlaps with high livelihood vulnerability to flooding.



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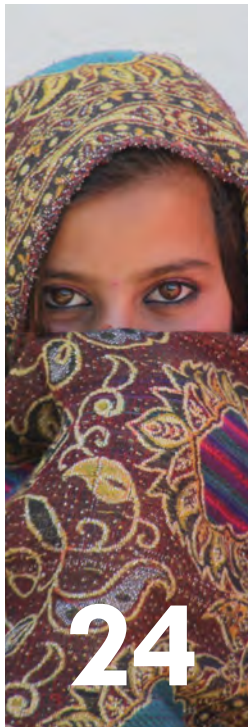
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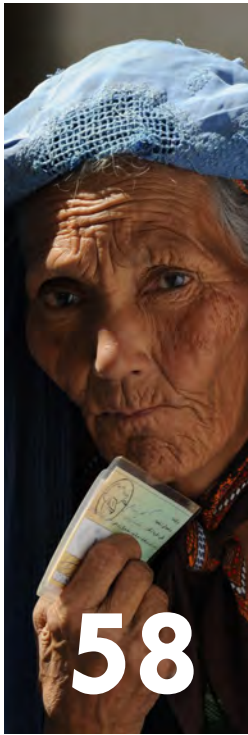
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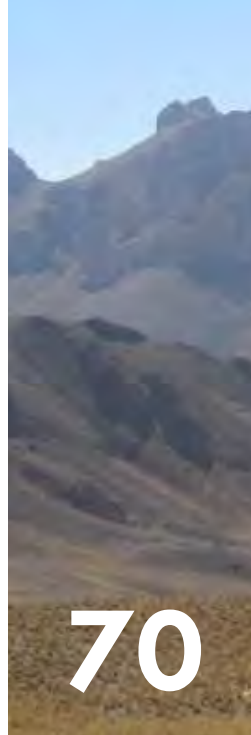
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INTRODUCTION

Afghanistan's government has warned that climate change is putting "the foundation of the country's economy, stability, and food security under threat"¹. Yet the very real risk posed by climate change to Afghanistan's development is usually overshadowed by the more immediate and visible concerns around conflict and economic crisis. This general perception of climate change as a secondary priority suggests that it is still misconceived as a purely technical, environmental problem—somehow distinct from socio-economic concerns.

Climate change does not occur in a vacuum: its impacts are intrinsically linked to the economic and security concerns which are at the top of the government's priorities. Climate change will make it extremely challenging to maintain—let alone increase—any economic and development gains achieved so far in Afghanistan. Increasingly frequent and severe droughts and floods, accelerated desertification, and decreasing water flows in the country's glacier-dependent rivers will all directly affect rural livelihoods—and therefore the national economy and the country's ability to feed itself. It is now widely acknowledged that "large parts of the [country's] agricultural economy will become marginal without significant investment in water management and irrigation."¹ Given the importance of agriculture to Afghanistan's economy and food security—agriculture is a source of income for 61% of the country's 29.1 million people, and accounts for 44% of employment (self-employed or salaried)²—this could increase both the number of food insecure people, and the severity of food insecurity (from transient/ seasonal to chronic, and from moderate to acute).

As conventional crops becomes less and less viable in some areas due to drought and desertification, rural populations will increasingly be driven to alternative livelihood options—including the production of less water-intensive poppy and, potentially, in-



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