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Impact of Climate Change on Food Security in Afghanistan**Roya Quraishi.**

Lecturer of Kabul University Faculty of Geoscience Kabul, Afghanistan. Year: 2021

Corresponding Author*

Roya Quraishi

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Abstract: Climate change and its toll, warming temperatures, and decreasing precipitation levels over the last fifty years have led to innumerable weather anomalies that have caused droughts, floods, seasonal precipitation, and decline of groundwater chart, deforestation, and biodiversity in Afghanistan. Among all population groups, rural communities in Afghanistan are particularly vulnerable from the effects of climate change and especially the increasing of food insecurity because their livelihoods is strongly depend on agriculture activities. Therefore, rural families have been taking some poor measures to cope with climatic conditions and adapt to them.

Because poorest people, particularly farmers and pastoralists are often living on edgy land, and food security and their livelihoods suffer from climate change. So that most worrying and need to be addressed most urgently. Therefore, climate analysis help to recognize the areas that there are the biggest changes in rainfall, temperature and other physical climate parameters. This, from this kind of climate data can find that what impacts of these changes will actually observe on poverty and food insecurity, and

how is increased people's livelihood by the creation of food security and suitable income.

Keywords: *Climate Change, Food Security, Drought, Flood, Food Insecurity.*

Introduction

The terrain of Afghanistan in South Asia is mostly rugged by mountains and its plains in the north and southwest. 12.13% from its lands are arable land or out of 652,230 square kilometers, its irrigated lands are 27,200 square kilometers. Permanent crops in Afghanistan are 12.3% and other crops are 87.7%. Its total resources of renewable water are 65 cubic kilometers and its freshwater is withdrawal. Total domestic is (2%), industrial (0%), agricultural (98%) and consumption is 23.26 cubic km/year, and per capita is 779 cubic m/year. Afghanistan food productions are opium, hashish, wheat, rice, barley, pulses, oilseeds, fruits, nuts, vegetables, and sheep. Its annual harvest is estimated at about 4.8 million metric tons of cereals. Afghanistan's agricultural productions are 47.2% from all GDP (WFP (World Food Program)). 78.6% of the active labor force is involved in agriculture, but at least unemployment is 35%. 36% of Afghanistan's population are below the poverty line, and per capita, annual income is \$800 (219th in the world).

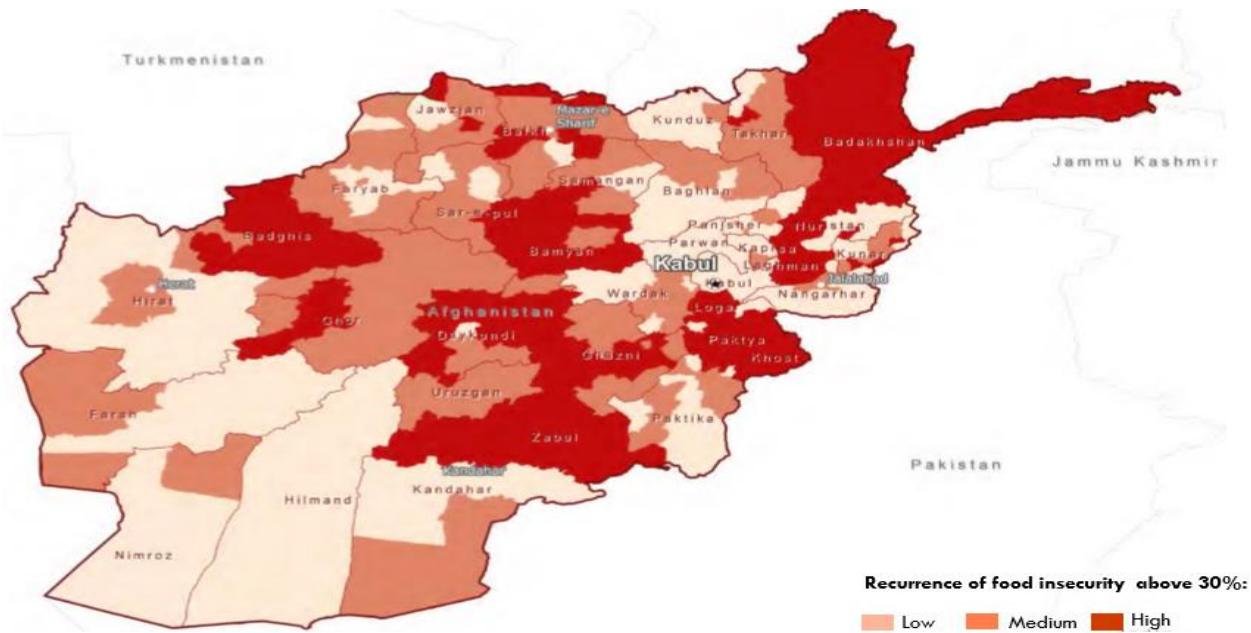
Afghanistan is a mountainous and landlocked country with cold winters and hot summers. That means the climate of Afghanistan is arid and semiarid. Afghanistan's population is estimated to be 32.2 million for 20-2019 based on the population statistics department of NSIA, Afghanistan's area is 652,863 km² administratively. This country is made up from 34 provinces that they are divided into more than 398 districts and administrative centers, and over 47500 villages. Agricultural activities are the main livelihood modus operandi for the Afghan people. So 55 percent of households are engaged on farming and 45 percent of them have different types of livestock. The instance of, contribution productivity from agriculture sector is relatively low and by the 30.6 percent of agriculture by the GDP has reflected in 2008-09. (NRVA 2007/08).

Climate change variation has been effective in many parts of life and on the agriculture sector. Therefore, it will act to loss the access of food, drinking water, and their utilization. Thus, that could potentially cause hunger, malnutrition, absence of household and individual incomes. It will exacerbate food insecurity; also will be the cause of lack of the progress in the world. Agriculture particularly crop productions in Afghanistan is more vulnerable to climate change and events of extreme weather such as droughts, heavy rainfall, low and unseasonal precipitations, glacier retreat, higher frequency of hot days, and cool nights. Receiving the impacts of climate change on various sectors and the creation of adaptation plans for coping with these rising events are very important for Afghanistan's future (Maletta, 2007).

The poor developing countries such as Afghanistan due to inadequate infrastructure instability, not having national efforts for mitigation and lack of policy for mobilizing against the adverse impacts of climate change on livelihoods have been most affected. Climate change measures and food insecurity are significant related issues of Afghanistan that are taken by various national and international sectors for reducing impacts of the events and their challenges that remain. The measures should be addressed through the new programming via government and chosen communities of international donors in Afghanistan.

Food security in Afghanistan

Food security, distribution, and agriculture is a major problem for Afghanistan given its 30-year history of violence and the scale of Taliban and insurgent operations. Food insecurity trends in the past years have shown occurrence over 30% (Fig 1). Malnutrition threats to the rural population of Afghanistan connect with the assessment of rules of water and irrigation allocation. seasonal and annual stream flows with the poor rules have to make a move abundant fluctuations on supply of water and have created economic on food security risks for most Afghan's farmers especially those who live at downstream areas (Shobair 2001; and Alim 2004). Lack of good hydrologic, economic, agronomic, and institutional data that describes the country's agricultural irrigation is a major challenge for water managers in Afghanistan, which are facing with them. In addition, relevant data capacity into a framework that it can connect economics, crop production, and food security has been remained under the damaged infrastructure of irrigation years, periodic drought, and ongoing military conflict. Because Afghanistan has strict arrangements for water allocation in drought period that has caused undermine food security. Thus, Afghanistan is facing with insecurity situation. 40% of Afghan people and 60% of parts of Afghanistan often do not have enough food all the time.



Source: Assessment of Risk and Vulnerability National in Afghanistan

Food Insecurity Caused by Climate Change in Afghanistan

Statistics of food insecurity in Afghanistan show roughly 9.3 million people making up an estimated quarter of the Afghan population are in need of food assistance. Six percent of people due to current consumption and coping capacity are severely food insecure. Female-headed households than others are more food insecure and subsist on a generally poor diet. Internally displaced people particularly those living in tents also represent a high share of the food insecure population. Children are disproportionately affected by food insecurity and forty percent of children under five years old are malnourished. Food insecurity and geographical characteristics have a relation with each other. For example, accessing of food and livelihoods replacement in high elevation points are limited. Therefore, significant variations in levels, causes, and repercussions of food insecurity across geographic and economic classes in the country are seen. Therefore, the Central Highlands and Northeast of Afghanistan consistently suffer from food insecurity. In addition, food insecurity in rural areas where 80 percent of the people residing over there is more pronounced.

The main causes of food insecurity in Afghanistan are the prevalent poverty, shortage of opportunities for jobs in rural areas, low savings, households extinct, increasing population, insufficient agriculture productions, short access to land and water, a decrease in land fertility, migration of rural residents.

The number of urban residents in Afghanistan increased day by day and it is contributing more food insecurity in the cities especially in poor and displaced households (Table. 1).

Table 1. Afghanistan's Food Insecurity

Residence	Food Security Status							
	very extreme food insecure		extreme food insecure		moderately food insecure		Total food insecure	
	1,000s	Perc	1,000s	Perc	1,000s	Perc	1,000s	Perc
North	221	6.2	327	9.2	491	13.8	1,039	29.1
North-East	284	18.3	561	15	466	12.5	1,711	45.8
Central Highland	426	15.2	301	10.8	352	12.6	1,080	38.5
Central	305	4.6	529	8.1	752	11.5	1,587	24.2
South	40	4.1	57	5.8	135	13.8	232	23.7
East	155	5.5	209	7.4	308	11	672	23.9
West	185	6.1	213	7	326	10.7	724	23.8
South-West	135	7.2	201	10.8	264	14.1	599	32.1
National	2,152	8.5	2,397	9.5	3,095	12.2	7,645	30.1

Source: CSO (2014)⁴

Climate Change Implications over Food Security in Afghanistan

UN (United Nations) has done in April of 2010 survey based on 14 provinces and the climate data through reanalysis a method which combines climate models with observations (satellite and rain station data). Thus, according to this the quantify change in climate trends by each climate indicator (spring rainfall, heavy rainfall, temperature, etc.) between the period 1950–1980 and the period 1981–2010 received. UN report mentions that the 74 percent of rural population and 26 percent proportion of poor households in Afghanistan face to particular challenges.

There are some events in Afghanistan because of climate change that can threaten food security such as, more and longer droughts, loss of vegetation cover, shortage in the ground water table, shortage of irrigation systems, and lack of rainfall for the sake of agriculture and livestock, increased number of floods and can also affected on social, economic, cultural, and political parts.

To understand how droughts and floods occurrence has changed in past decades used a combination of different climate indicators. Due to too little or too much rain should look at the changes of spring precipitations', heavy precipitation events, and evapotranspiration for drought and flood. from too little or too much snowmelt on upstream mountain areas should look at the changes in the number of snow days per year, winter precipitation, and spring temperatures' in Central Highlands, Hindu Kush, and Pamir mountains for drought and flood (Figures. 2 and 3).

The risk of climatic drought related to lack of rainfall has increased on the past thirty years across the main country's areas that negative's impacts on food security are concentrated in the north and other parts of Afghanistan.

These are areas where the livelihoods are highly dependent on rainfall and where the observed decline in spring rainfall has a direct impact on households' capability to produce food and earn income (shows in the part one of figure 2).

Drought incidence is related to the melting of snow which is caused by the reduction of winter snowfall in the parts of the Hindu Kush Mountains has primarily affected Kabul and its surrounding regions. These

densely populated areas produce most of the country's vegetables, fruits, and cereals and are heavily dependence on irrigation from the Kabul River and its branches that are partly fed by snowmelt from the Hindu Kush (shows in the part two of figure 2).

Negative impacts of floods caused by heavy spring rainfalls have been detected across different livelihood zones from the mountainous areas in the northeast and center country to hilly border areas in the southeast to the plain and arid areas in southern provinces. These zones have heavy precipitation events that have increased by 10 to 25% in the past thirty years and livelihoods over there are dominated by agriculture and pastoralism that are highly sensitive to flooding (shows in part two of figure 3).

Direct impacts of riverine floods caused by increasing of spring snowmelt on spring season have concentrated along rivers in the eastern part of the Helmand river basin. The risk of floods related to snowmelt and livelihood vulnerability is increased by this flooding (shows in the part one of figure 3).

DROUGHT

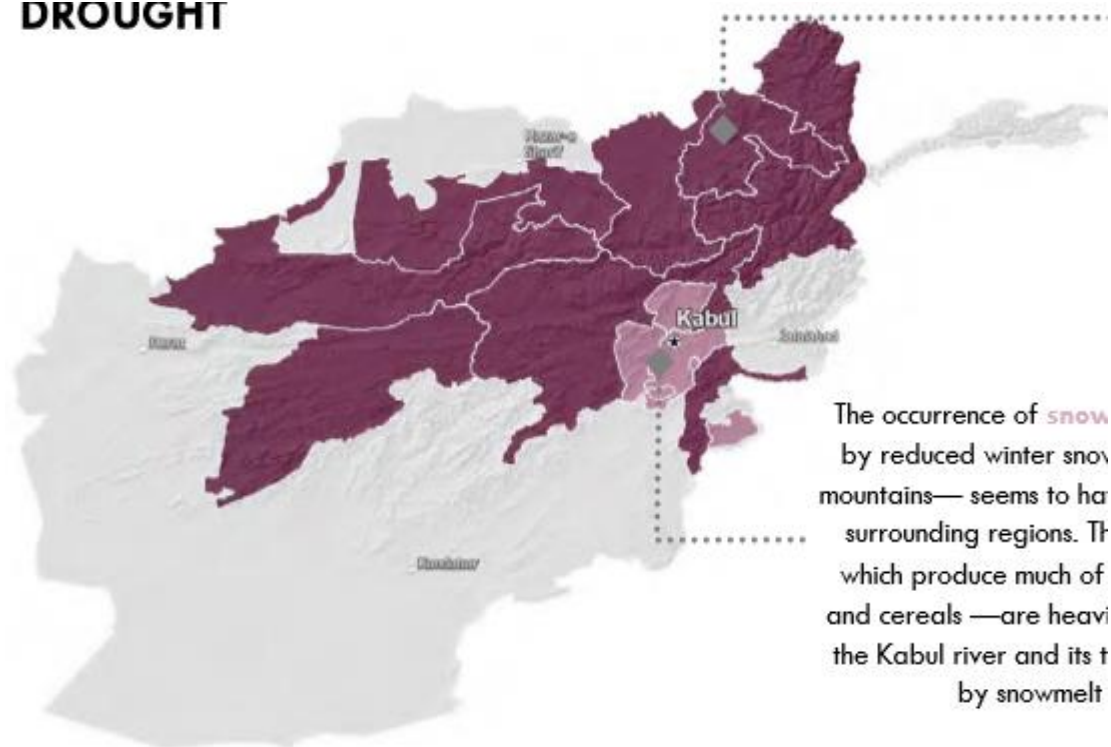


Figure 2. Food Security Vulnerability in Afghanistan by Climate Change (Drought)

Source: Afghanistan - Vulnerability Assessment and National Risk in 2005

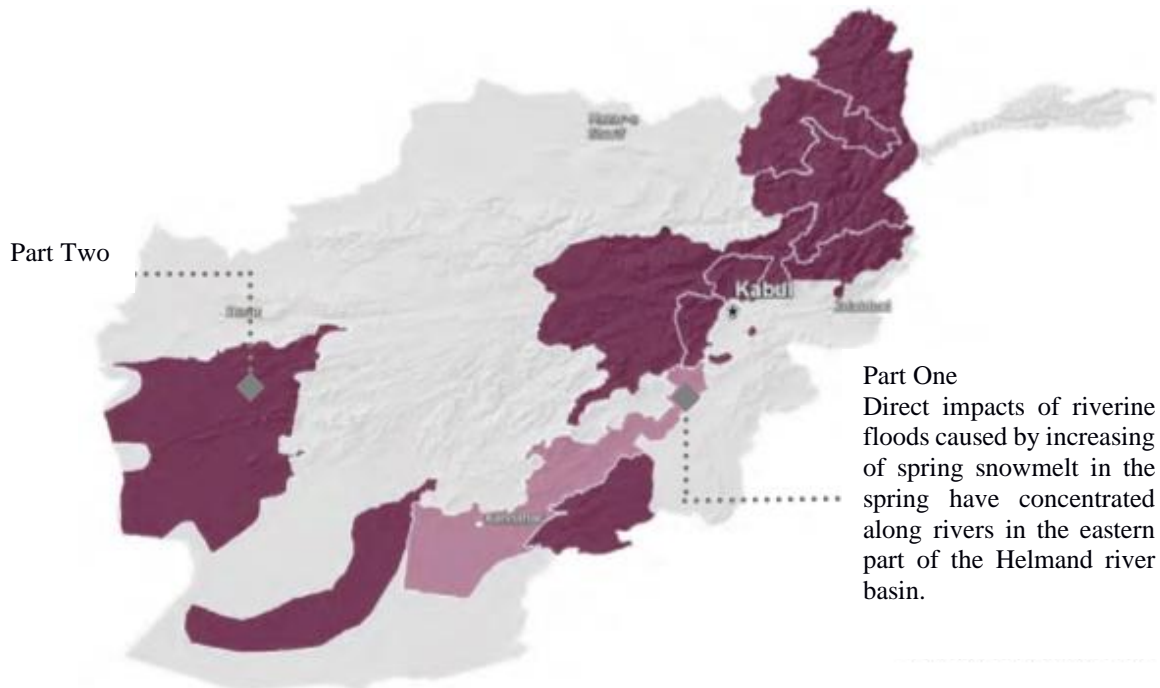


Figure 3. Food Security Vulnerability in Afghanistan by Climate Change (Floods)

Source: Afghanistan - Vulnerability Assessment and National Risk in 2005

Aid to Food Insecurity in Afghanistan

In Afghanistan, aid programs of food have not fully meet the growing needs of food for the people, but it only typically protects of people during an acute crisis such as natural and human-made disasters. For example, in Kandahar province during the severe food insecurity, people can have access to only one time of meal per day and it often consists of bread.

However, pregnant women and children that they are travelling from malnutrition can pick out as a beneficiary of some aid programs of food. Another form of traditional help is that the wealthier families in the community assist their poorer relatives and neighbors via donations of food and clothes. This traditional aid is more common in rural areas than in urban areas due to close connections within families, but this assistance is temporary and can be unreliable. Another locally-based food assistance in some communities is the use of zakat and Islamic tax that it is collected by elders and is distributed to the poorer people.

Donations during Friday prayers in many mosques via announcements are made for individuals or families who are facing a tragedy such as a funeral. Also during the month of Ramadan in mosques Iftar (fasting Iftar) without charge for everyone is provided as a Foodstuffs help. At other times in the year, poor people outside mosques or near the bakery may congregate to beg for food and money, but mosques are not playing a direct and ongoing role in the meal the poor's.

The unified analytical framework for discovering water allocation for adapting on water supply shortages is the region that is more flexible to reduce the risk of food insecurity. This also contributes to the weak

capacity of agricultural irrigation and provides a high percentage of the wage for people who are making their living with the production of agriculture. The contribution of this resolution is to create, describe, and apply a framework that water managers and stakeholders can be enabled to improve food security and raise farm net incomes when agriculture will face extreme, unexpected, and periodic changes in the water supply. It can address the important and relevant issue of how water governance and allocation rules can be made more flexible on adapting of water shortages. The analysis to identify allocation of the water system and its sharing that can minimize lack of basic economic materials and food insecurity by water supply on occurrence drought. An integrated framework for water resources should be developed which can unify data of crops, water, and farm.

Many Afghan farmers do have not enough land with consideration of less earn and lack of providing livelihood to feed their families. Individual farmers' aid may not be enough affect and it really cannot improve this situation in Afghanistan and cannot reduce a little poverty and food insecurity. No aid organization has provided significant and punctual data on aspect effectiveness of its efforts. Only the data from World Food Program (WFP) is slightly better. This program, directly and indirectly, is affected roughly on all Afghans, since it reduces the pressure of poverty against the entire economy. The aid report is difficult to understand different dynamics that effect the agriculture sector and poverty on a large scale in Afghanistan. Aid organizations equate the effects of population distribution on agriculture with the effects of changes in geography, climate, and hydrology. While, these factors cannot be lumped together, but they must separately examine in order to get an accurate picture of the area situation.

While food insecurity results handle of negative consequences such as, forced sale of land and other assets, family conflicts, poor outcomes of health, girls' early marriages, beg and perform children out of school in order for sending them to work. Some of these consequences are used as a family coping strategy to solve the immediate problem of food insecurity but create additional hardships in the future that are even more difficult to overcome.

Conclusion

The climate of Afghanistan has changed in the past years and will further change in the coming decades. The results have included by increasing unpredictability of weather patterns, frequent droughts, extreme events of weather such as strong snow and rain, frequent floods, unseasonal rain and snow, shrunk glaciers and natural water reservoirs, the downing of groundwater levels in most areas in the country, extreme deforestation and loss on forests and pasturelands, harm of biodiversity, and in conclusion food insecurity across to the country. Moreover, future climate predictions indicate a strong likelihood of worsening conditions in all those portions.

Throughout the country, impacts of socio-economic of these events have been harmful and important. Especially food insecurity because around three-quarters of Afghanistan's population lives in the rural areas and have traditionally depended on agricultural productions getting income. They have lost a substantial part of their arable lands due to droughts and floods by prolonged climatic stresses.

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