

Impacts of Climate Change on Livelihood of Older People in District Nowshera- Pakistan

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Abstract

The study was carried out in district Nowshera in 2017, in order to examine the effects of climate change on livelihood of older people. The Universe of the study was District Nowshera which consist of three tehsil namely Phabbi, Nowshera and Jehangira while in the first stage purposively two tehsil Phabbi and Nowshera were selected on the basis of more climate affection. On the same methodology in the second stage villages Khesghi Bala and Cant union councils were selected from Nowshera while Mohib Banda, Pashtung Ghari and Jabba Khansa were chosen from tehsil Phabbi on the same analogy. The number of respondents were 117 in the selected villages while number of male was 54 and women was 63. The data was collected through focused group discussion, Key Informant interview and consultation meeting with Elder people of the study area. The results indicate that climate change has affect the pattern of the rainfall which has brought the flood. Latter on flood damage the Land, Houses, infrastructure and farming and livelihood of the old people in district Nowshera. The health of older people highly affected which further affect their activities in the study area and affect the income level of the older people. Before they were capable to work in the fields and to help their families for boosting their income level while now due to heat and unfavorable environment it is difficult to perform duty in the field efficiently and due to seasonal change also affect their health which have affected their daily activities. The rich people of the area have increased fertilizer to their field for boosting their productivity of agriculture while the poor have no money for covering these deficiencies, so their livelihood badly affected due to climate change. It was also reported that due to floods majority old farmers land was damaged and because of this they have left the farming activities and start work as a labors in other sector of the economy. On the basis of problems it is necessary for the government to provide credit to poor old farmers on free interest basis for boosting their farming activities in the study area. Similarly provide tractors on low per hour rate to farmers for leveling to their land which was damaged by flood for uplifting their livelihood.

Keywords: - Climate, Impact, Livelihood, Older People, District Nowshera

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1. Introduction

The long-term living conditions of populations depend on the continued stability and functioning of ecological and physical systems, often referred to as life-support systems. The world's climate system is an integral part of this complex of life-supporting processes, one of many large natural systems that are now coming under pressure from the increasing weight of human numbers and economic activities (World Health Organization, 2003). Rapid changes in global and regional climate can cause adverse implications for human well-being, development, and security through increased exposure to severe weather conditions such as floods and droughts that will directly magnify the risks of diseases and poor-health, inadequate drinking water and food scarcity, loss of livelihoods, migration, violence, and conflict (United Nations Development Programme, 2007). Vulnerable and marginalized groups including the poorest populations in low and middle income countries will face a disproportionate impact of climate change and this will threaten the effectiveness and success of development and poverty reduction efforts. Conversely, existing inequalities can also exacerbate individuals' vulnerability to the negative effects of climate change (Bernstein et al., 2008).

According to the Climate Risk Index (CRI) of Global Climate Risk Index 2017, Pakistan remains among the 10 most vulnerable countries during 1995-2015 (Kreft et al., 2016). The country being the sixth most populous country of the world, is already resources stressed and depends largely on agriculture for its economy. The devastating floods and droughts continue to heavily toll on the country's economy and human lives. The agricultural lands have been degraded and financial losses have been estimated at \$2 billion. Research studies reflect more changes in weather pattern that may lead to prolonged droughts, rain torrents and intense heat waves in the country. In the foregoing scenarios, different age and gender groups within the country will suffer at different scales based on their degree of vulnerability and resilience. Older People, constitute a significant portion of the country population, are physically, financially and emotionally less able to deal with the effects of

a changing climate compared with the rest of the population which increase their insecurity and exposure to certain threats caused by a changing climate.

In this situation, where the impacts of the changing climate have already been manifested on almost all the disciplines of life, the best option is to timely adapt to the changes that have already happened and or expected to occur. For adapting to changing climate, it is very important to have a pragmatic knowledge of the nature of change and its impacts on a specific group of population. Help Age International Organization records that 67% of the old age (people aged 60 or above) are living in low- and middle-income countries which are more prone to climate induced hazards. Though climate change affects every one, a considerable volume of evidences confirms that it causes specific risks to older persons, both men and women. Older people are more susceptible to the adverse impacts of extreme weather events and changing climatic pattern. They have an increased risk of disease, restricted mobility and food insecurity. The sufferings of some older people are further exacerbated due to social and economic factors. Social helplessness and little access to resources, in addition to fragile health conditions, hinder their capacity to cope with climate-related stresses. Though, they can play an important role in adaptation of their families and respective communities to climate change impacts. Their experience can provide vital information on past climatic histories, hazards and disaster impacts, a community's vulnerabilities and capacities, or socio-environmental relationships, and can be a key to understanding the nature of climatic vulnerability. It is therefore vital that climate mitigation and adaptation strategies are inclusive of older people in order to maximize these capacities in addition to addressing their rights and vulnerabilities (Clodagh & Clare, 2015).

A research article on 'Aging, Climate Change and Legacy Thinking' reflects that older men and women have to care about climate change for many reasons regarding their age. First, they are especially vulnerable to several of the health impacts of climate change, such as heat waves, diminished air quality, and the disruptions of extreme weather events. Second, as they get older, they may take on political or social views that condition their attitudes toward climate change. Third, older people may feel a sense of legacy—a concern for the well-being of those who will come after them (Frumkin, Fried et al., 2012). A research study conducted on older people in nine countries in Africa, Asia and Latin America exposed that older women and men are affected by the changing climate (helpage reference). According to the respondents, they suffered damages to their property, land, livestock, crops and other means of livelihood. The older men and women were aware about changes in the environment and were desirous to be included in climate change related debates and policy talks.

District Nowshera is one of the most at risk in Pakistan due to its geographical location and rapidly changing climate, as per the National Disaster Management Plan 2012-22, The relative severity index of the NDMP puts it as the most "At risk District" in Khyber Pakhtunkhwa, with a total risk weightage of 24. The district is prone to both natural and human induced hazards. This diverse profile includes hazards like riverine floods, flash Floods, Earthquakes, Land sliding, Soil Erosion, Epidemics, Drought, Pest Attacks, water born disease, hail storms as well as industrial fires, sectarian violence, terrorism, IDPs and refugees. (District Disaster Management Unit, 2014). This climate induced hazard has severely affected the health of residents of the district especially older people. Therefore this study aim to identify the effects of climate change on the livelihood of older people both men and woman in the study area.

2. Methods and Material

Universe of the Study

The study was conducted in District Nowshera of Khyber Pakhtunkhwa. District Nowshera is situated in the east of the province adjacent to Peshawar. It borders in the North with District Mardan, in the North East with District Swabi, in the South with District Kohat, in the South West with Orakzai Agency and District Attock of Punjab in the East. The district consist of 3 tehsils and 47 Union Councils covering an area of 1748 sq.km (675 sq. m) between latitude 30.42, to 34.09 N, longitude 71.41 to 72.15E. Nowshera was a Tehsil of District Peshawar till 1988 when it was notified as a District. The area of district Nowshera is 1748 Km and projected population is 1462761 with annual growth rate of 2.9% (Calculated on the basis of 1998 population). The male and female ratio is 52:48 and the urban and rural ratio is 25:75 while average household size is 7.7 person and electricity facilitation is 91%. District Nowshera consist of three tehsil namely Nowshera, Pabbi and Jehangira. The total union council of Nowshera is 47 while village councils number is 129 and municipal committees number is 4 and town committees number is only one. Provincial seats number is 5 while national seat number is 2. In this district 8 hospitals, 16 dispensaries, 7 rural health centre s, 32 Basic Health units, 4 mother child care centers and one TB Clinic are working for the facilitation of health services.

Seventeen percent population of the study area is involved in labor and about 21 % is involved in agriculture while the remaining population depends on private, government services and business of different scales. Climate of the district is warm and sub humid. The average rainfall at Risalpur and Cherat during 1981 to 2013 has been recorded as 684 and 585 mm respectively. The area receives maximum rainfall i.e. about 60% in the month of February, March, April, July and August. In summer the temperature goes up to 40°C and more,

while in winter the weather temperature dropped to 1°C. Geographically the district has a great diversity in its terrain. The northern part of the district is mostly plains with more rivers and canals, while the southern parts, Ziarat Kaka Sahib, Nizampur, Cherat etc. have mild slopes and hills mostly rainfed and scarcity of water. Hence, some areas have issues of water logging while other areas are facing scarcity of water particularly for drinking. Indigenous knowledge is an inevitable element of devising a coping or development strategy. For a pragmatic analysis of climate change impacts on older men and women, it is necessary to listen to their voices and also to explore their experiences, perceptions and already adopted or recommended coping strategies. The current study was a rapid appraisal to lay the foundation for further in-depth research and required action. Along with review of existent data/literature, the study comprised three major components of Focus Group Discussion (FGD), Key Informants' Interview (KII) and consultation with the stakeholders.

Focus Group Discussion (FGD)

To conceive a gender sensitive scenario, separate FGDs were conducted with both male and female OPAs in five (5) UCs, wherein female and male OPAs existed. However, in selection of UCs other factors i.e. geo-physical, agro-climatic and socio-economic conditions were also adhered to, for an ample coverage of the district. Total 54 men and 63 women with age range of participated in the 5 men and 5 women FGDs at 5 Union Councils. The study team, led by a team leader, comprised one male and one female. A questionnaire/checklist, developed in consultation and tested prior to the FGDs, was used for data collection.

Key Informants' Interview (KII)

Seven (7) community elders, activists and professional having traditional and/or modern knowledge and sufficient exposure were separately interviewed, in almost all the selected union councils, to have more insight in the issues some of which were not possible to get information about in a general meeting or discussions and to cross check the information collected in the FGDs. Different questionnaire was used for Key informants interview.

Consultation Meeting with Stakeholders

Many other government and non-government actors are concerned with old age affairs in the districts and have authentic information regarding challenges of older persons in face of the rapidly changing climate and its subsequent impacts on natural and human systems. A consultation meeting was held with representatives of District Administration, District Disaster Risk Management, Social Welfare and all other relevant government line departments and non-government development and humanitarian agencies to share with them the information collected through FGDs and KIIs for further validation and to know more about the theme and formulate workable recommendations with consensus. All the corrections and suggestions of the participants were incorporated in the present study.

3 Results and Discussion

Livelihood Assets of older men and women

According to the statistics of KP government about 17 % of the population in Nowshera district is involved in labor and about 21 % is involved in agriculture while the remaining population depends on private, government services and business of different scales (District Disaster Management Unit, 2014). However, most of the people, one way or the other, are associated with farming i.e. agriculture and livestock.

Common livelihood assets/resources of people in the district include agriculture lands, buildings, livestock, government and private services, business, pensions, in land labor and foreign remittances. Majority of older persons, particularly women are dependent on their descendants/progenies for their livelihoods as they are too weak to work and have little control over even on their own assets, if any. A small portion of them, retired from the government services, has pension, while some also depend only on charity. Population above 60% constitutes a significant portion of the total population i.e. about 7%.¹ Though, people of younger age with disabilities, widows and divorced women further add to the number of vulnerable people in the district.

The overall literacy rate of women in the district is 22.68% (District Disaster Management Unit, 2014) which further decrease in rural areas, while the unskilled women have a secondary role in income generation e.g. they help male members in agriculture and livestock management etc. Usually, they do housekeeping, look after their children and livestock, while some also involve in stitching and embroidery etc.

Damages Caused to livelihoods Assets by Climate Induced Hazards

Flood 2010 is a hallmark in the history of natural disasters occurred in the district. The flood caused severe damages to Lands, houses, livestock and overall infrastructure. 29 union councils in the low elevation basin of

¹Pakistan Bureau of Statistic - Census 1998

the district were badly affected by causing partial or complete destruction of about 67,940 houses and affecting about 571,222 people. 98% of the drinking water sources i.e. hand pumps, dug well, and bore well, except tube wells, were contaminated due to flood water and people have no choice but to use unpotable water for drinking and other household purposes. The devastating flood imprinted various economic impacts on the community. Approximately 2000 hectares agricultural land was damaged and 64% standing crops were destroyed causing a projected production loss of 0.1 Million tons. About 68,000 animals died as a result of flood and people lost jobs, running businesses and valuables like property, stored food and other necessities of life. The flood also washed away about 32 fish ponds out of 59 (54%) in the district (Haseeb, 2015).

In routine, according to the people of the area, heavy rains in monsoon cause damages to muddy houses while the subsequent floods in the rivers usually submerge agriculture lands on the banks. Besides rising temperature, long dry spells, rain and hail storms result in low productivity of crops and livestock in the district.

Low rain fall in winters affect wheat sowing particularly rained parts of the district while more rains in flowering reduce fruit production. In some areas, water scarcity, both for drinking and irrigation add to the economic hardships of poor households, especially of older men and women as they are not able to afford high rates of electricity bills / fuel cost of electric generators regarding water pumping. A significant decrease the number of livestock has been observed due to increasing diseases and reducing pastures etc. Low milk production is usually attributed to heat stress and shortage of nutritious fodder. Due to low productivity, people are opting for more intensive farming and use hybrid seed and excessive amount of fertilizer that is posing a threat of less nutritious food and the resultant health issues.

Changes in livelihoods Strategies of Older Persons

In common, except cases of extreme segregation, older persons' livelihoods are part of the overall household economy, and, based on their age and health conditions, they only play secondary roles to support the earning members of their households. As a whole about 40% households have shifted to labour from farming because of the previous flood disasters. While those still involved in farming use improved seed and adopt new varieties to cope with the issue of low productivity due to changing climatic conditions. An increase in the population of pests, weeds and crop diseases has been observed that has resulted in enhanced use of fertilizer, pesticides and weedicides. People have started to grow eucalyptus and poplar trees on waterlogged lands, as a cash crop.

Access of Older Person to Food and Water Resources in Routine and Emergencies

Older persons reported little, probably due to some social or cultural restrictions, about discrimination regarding their access to proper food and water resources but, during the FGDs very clear glimpses of the older persons' miseries, particularly in emergencies, were noted. Older people especially in the poor households don't have an equitable access to food and other life amenities. In disasters and the afterward relief interventions, the situation often get worse due to mandate/scope limitations of NGOs, government organizations and local representatives.

Changes in Workload of Older Persons Due to Water Scarcity (drinking and irrigation)

Usually in absence of young male family members, the duty of collecting water for drinking and irrigating crops fields lies on the older persons. In case of water scarcity they have to fetch water from remote sources and have extra workload. In case of irrigation, older persons particularly women have much more difficulties to access the water or obtain their due share. Though in most parts of the district is no drinking water in normal situations, however it was observed during flood, while in some areas it is caused by long dry spells.

Access of Older Persons to Cooling and Warming Facilities at House Hold Level

The respondent older persons were found satisfied with their access to cooling and warming facilities available at their houses, yet poor households have little facilities at all. With rising temperature, need for cooling facilities has increased as compared to 20 years ago. Extensive load shedding of electricity have caused manifold issues in the overall community regarding cooling and other household facilities.

Overall Vulnerability Context Regarding Livelihoods of Older Men and Women

Physical weakness and fragile health conditions themselves are great vulnerabilities of the older persons. They, whether rich or poor, are highly dependent on their young generation for their livelihoods and other physical, emotional comfort. Old age cause a key shift in their power dynamics within the household and also in the community. They, explicitly or subtly, have little access to and control over the resources even still legally owned by them. In this regard, women are more vulnerable because of men dominated social and cultural trends. Those belonging to poor households have no or less sustainable livelihoods resources and are more prone to disasters. Unfavourable changes in climate and disability, often due to old age, further makes the situation more critical. Older persons, during FGDs and interviews reported that due to high temperature they were not able to work in fields or even help their family members in other such activities. Heat stress causes them various types

of injuries which sometimes results in deaths e.g. in 2017, an old person died of heat stroke during fodder collection at his farm.

4. Conclusions and Recommendations

The study concluded that climate have changed the pattern of the rainfall, melting of glaciers on the south pole and temperature which affect the river flow and increase the flood which damage the land, crops, houses, tube well, water pump, animals and forest in the study area which affect directly the livelihood of the older people in the study area. Before they were energetic to perform their duties in the study area for uplifting income level of the family while now they have losing their capability for doing work. Climate change the temperature which have make the environment unfavorable for old people and decrease their livelihood in the study area. On the basis of problem it is required for the government to help the poor people in the study area and provide credit on no interest basis to community for uplifting their livelihood for boosting the economy of District Nowshera. For land leveling provide tractors to improve production efficiency of the land in the study area. More plantation program should be launched in Pakistan to control soil erosion and deforestation in the country. To cement the bank of the river for speedy flood safety in the study area. Infrastructure should be developed in the study area. For future flood occurrence safety network should be developed in the study area. Plastic bags putting should be stopped in the river and river should be cleaned in future for flood safety in the study area.

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6. CONTRIBUTION OF THE AUTHORS

Mr. Irshad Ali Mian Deputy Director and Mohammad Zulfiqar Director of Climate Change Center of Agriculture University managed the whole project while Dr. Naushad Khan give structure to the paper and process all step of paper to the Journal while Dr. Fazal Hanan help in writing while Mr. Abbas Qazi and Dr. Nayab Gul also assisted in writing and paper structuring while the remaining authors help in data collection and tabulation throughout the paper processing while Shah Fahad play great role in paper setting during typing and correction while Mahnoor Naushad help in proofreading and setting the paper.

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