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Impacts of Climate Change on Social Life 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 social life 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 Kheshgi 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 older people of the study area. The results indicate that climate change has affected the pattern of the rainfall and flood and temperature which has disturbed the social life of the older people. The flood has destroyed the land and houses which affected the livelihood of the younger people, so the yourngers for the purpose of their livelihood left their houses from district Nowshera and left older people at their home for care of the families. The look after responsibilities fell on older people shoulder which latter on affect their health. Government has arranged different programs for helping the communities while the poor older people of the communities have no access to these programs and the rich old people get the benefit of the program very easily due to their good approaches. Load shedding is the serious problems which affect the function of the fans and AC. Due to fans and AC the mosquitoes at night disturb the older people sleepiness which make the environment unfavorable for the older people which latter on affect their health and daily activities. Crimes and poverty also increased, lack of livelihood in the study area. On the basis of problems credit should be provided to older people for their financial problems on free interest basis from the bank. Safety network should be established in the study area for solving the problems. Rescue team should be arranged for emergency problems of the older people in the study area. Health services should be facilitated in the study area for older people for social life improvement.
Keywords: - Climate, Impact, Social Life, 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 refuges. (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 social life of older people both men and woman in the study area.

2. LITERATURE REVIEW

Climate change is unequivocal and has manifold implications for all walks of a society. IPCC Fifth Assessment Report (AR5) summarizes the causes of climate change and its impacts on the natural and human systems as following:"Human influence on the climate system is clear, and recent anthropogenic emissions of green-house gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems". "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen"."In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate". "Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions". "Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe,

pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks".“Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise". “Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development".“Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales and can be enhanced through integrated responses that link adaptation and mitigation with other societal objectives"(Pachauri et al., 2014).

Pakistan Meteorological Department (PMD) has analyzed climate indicators and signals of climate change in Pakistan. The report reveals that signals of climate change in the country are consistent with the global warming. The main findings of the analyses are: Mean Annual Temperature of Pakistan has increased by 0.57°C from 1901 to2000 and it has risen by 0.47°C in the period from 1960 to 2007. Rise in temperature is even faster in the last decade of the data period i.e. 1901 – 2007. The rate of increase has been 0.057°C per decade in 20th century; it has been 0.099°C per decade from 1960 to 2007. There is high variability of climate in Pakistan, so the change is not linear. The highest rate of increase occurred in the last decade. The average annual temperature of the last decade remained 0.6°C above normal. The warmest year on record was 2004. The second warmest year was 1988. The other warmest years (with anomaly +0.4°C) in the order of anomaly were 2006, 2001, 2002, 2000, 2007, 1999, 1970, 1963, 1977, 1971, 1969, 1985, 1998. The summer mean temperature has increased by 0.89°C, 0.22°C and 0.02°C in Baluchistan, Punjab and Sindh, respectively. The same has decreased by 1°C, 0.26°C, 0.04°C in FANA, KP and AJK, respectively. There is significant increase in winter mean temperatures at all the regions of the country, mentioned above. The increase is in the range 1.12°C – 0.52°C. The annual maximum temperature of the country has increased by 0.87°C in the period from 1960 – 2007. The annual minimum temperature of the country has increased by 0.48°C in the period from 1960 – 2007. There has been increase of 31 days in Heat Wave duration for the data period. Heat waves have increased in all parts of the country. There has been non-significant increase of 4 days in Cold Wave, with spatial variability across the country. The cold waves have increased significantly in western and north-western parts of the country, and decreased in north-eastern and south-eastern parts. The annual precipitation of Pakistan has increased, significantly, by 61 mm from 1901 to 2007. The monsoon precipitation has increased by 22.6 mm and winter precipitation has increased by 20.8 mm, both are non-significant. The annual precipitation of Punjab province of Pakistan has increased by 228 mm over the data period mentioned. The summer monsoon precipitation has increased by 111.2mm and winter precipitation has increased by 59.6mm.The annual precipitation of Baluchistan has increased 8.5mm which is non-significant. There is also non-significant increase in summer monsoon, 3.6mm, and winter 2.2mm from 1901 to 2007.The annual precipitation of Sindh also has non-significant increase i.e. 15mm for the data period from 1914 to 2007. The summer monsoon has almost no change and winter precipitation also has non-significant increase of 7.5mm over the period mentioned. The annual precipitation of KP has significantly increased by 73.5mm from 1901 to 2007. There is almost no change in summer monsoon precipitation and significant increase of 70.6mm in winter precipitation. There is non-significant increase in the heavy precipitation events at most of the stations used in this report. Significant increase has been observed at Islamabad. There have been non-significant mixed signals of increase and decrease in the extreme precipitation. Most of the regions in Pakistan are showing positive trend in temperature for the period 2011 - 2050. Maximum rise is expected in Northern Areas of the country and Central-Southern Punjab and Lower KP. However, there are mix trends of increase and decrease of precipitation are likely in different regions. (Chaudhry, Mahmood, Rasul, & Afzaal, 2009)

A review of the 2010 flood damages reveals that it was the worst flood in the history Pakistan. According to Damage Need Assessment (DNA) report of ADB/World Bank, the flood affected an area of about 160,000 km2 (one fifth of the country), claiming about 1,985 lives, damaging around 1.5 million houses, wiping out cropped area of more than 17 million acres, displacing a population of about 20 million and resulting in economic loss of PKR 10 Billion. (Hashmi, Siddiqui, Ghumman, & Kamal, 2012)

The review article further summarizes the history of floods in Pakistan that eighteen major floods in 60 years are one of the main challenges to economic development. Overall, more than 10,000 people lost their lives and the country suffered a cumulative financial loss of US$ 30 billion. Some 127,375 villages were reportedly damaged/ destroyed and a total area of 567,132 Sq.km was affected due to the eighteen major flood events. Among these extreme flood events, 2010 flood was the most destructive flood in Pakistan, which significantly added to these figures(Hashmi et al., 2012).

HelpAge International 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, & Moody, 2012).

In a newsletter, HelpAge International reports that during a research study on older people in nine countries in Africa, Asia and Latin America exposed that older women and men are affected by the changing climate. According to the study respondents, they suffered damages to their property, land, livestock, crops and other means of livelihood. The older men and women were aware what was happening to the environment around them and were desirous to be included in climate change related debates and policy talks. HelpAge International is advocating for "age-friendly" actions to make the inclusion of older persons possible in adaptation measures within the "post-Copenhagen" agenda which include; Investing in age-friendly health systems, social protection and support for older farmers. Researching, traditional knowledge on climate change, studying indigenous, drought resistant crops, and developing land and agriculture policies that take into account climate change. including issues of older people in any policy dialogues taking place during and after the Copenhagen Summit making climate change messages more accessible to older people.(Sylvia, 2009)

The HelpAge International's position paper 'Climate Change in an aging world' highlights the recent political developments regarding coping with climate change effects on older people as following;"For the first time in over 20 years of UN negotiations, the 2015 Paris Climate Conference, or COP21, aims to achieve a legally binding and universal agreement on climate change, with the goal of keeping global warming below 2°C. A total of 190 countries have already submitted nationally determined contributions, which will determine whether and how the world implements the COP21 agreement and embarks on a path towards a low-carbon, climate- resilient future. The need to address the threat of climate change to development progress has been further reflected in the outcomes and frameworks from three other major conferences and summits of 2015: the Sustainable Development Goals, the Sendai framework for Disaster Risk Reduction, and the Addis Ababa Action Agenda. Older people have been recognized for the first time as a stakeholder group within the Sendai Framework, and the Sustainable Development Goals include specific references to all ages and older people. The implementation of the COP21 framework and climate-focused targets within the SDGs and Sendai must reflect the context of an ageing world. To be successful, the national-level commitments resulting from COP21 must respond to the rights and needs of older people and other at-risk groups".(Clodagh & Clare, 2015)

3. METHODS AND MATERIALS

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 OPAsin 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.

4. RESULTS AND DISCUSSION

Disasters, natural or manmade, not only affect physical resources of a community but also trigger social, cultural and ethical erosion resulting in no or difficult access of marginalized groups to physical, social and economic resources. Social impacts of a disaster more often reflect in shape of individualism and communal indifference, dislocation/migration, increase in crimes and disputes. The disaster of 2010 imposed a huge migration and relocation. Among the affected population, about 90% families dislocated from their place of origin out of which lived with relatives& friends. While the loss of economic opportunities also compelled men to migrate to other areas of country for livelihoods earning. This left women both young and older as well as the older men with more responsibilities of looking after children, household management and other routine tasks in and outside home, in a socially less conducive environment. Overall shift in social values is causing indifference to older persons at large. With regard to rescue during emergencies, though the older men and women are given a proper attention, in routine life the mid generation has more focus on its young generation than on the elders.

Increasing Workload and Social Crimes

In district Nowshera, in absence of mid/young generation, the older persons have to take care of the whole family and to do day to day tasks i.e. shopping, livestock / crop management etc. As reported in the FGDs, social conflicts, crimes and unemployment have increased to an alarming ratio which has affected older men and women of the area in the post flood scenario.

Physical Discomfort and Poor Health

In face of changing climate i.e. rising temperature, older persons direly need some basic facilities i.e. mosquito curtains, alternate sources of electricity, fans, food, shelter, Firewood and safe drinking water, while lack of these facilities often result in overall discomfort and different kind of disease in older men and women. Older men and women in majority of poor households in the area have little access to such facilities and suffer from different types of discomfort e.g. sleeplessness due to mosquitoes, less privacy due to shared accommodation and poor health due to negligence.

Less Inclusion in Development and Humanitarian Programmes

In the district, usually older men and women particularly the poor ones are ignored in development and humanitarian initiatives, except those particularly designed for them. Although some well up elders in each village/community have political & social influence and are inevitable to be included in such programmes, The poor ones particularly widows, divorced women and those with no children have little access to such programmes.

Dissolution of Traditional Knowledge Sharing Institutions

Among other factors i.e. change in life style and new technology, climate change also has contributed in dissolution of traditional institutions e.g. Hujra are fading away due to less facilities required at in face of the rising temperature. However people respect the knowledge and experiences of older men and women about wise utilization of natural resources, early signs, indigenous warning system and community based adaptation strategies.

Community Based Adaptation Strategies

In face of the foregoing scenarios however, people have taken some self-help based measures to appease the intensity of such miseries e.g. communities have formed their organizations/associations to coped with disasters risks and have adopted some low cost technologies and practices at community/household level i.e. use of mosquito curtains and solar panels etc.

5. CONCLUSION AND RECOMMENDATIONS

The study concluded that climate change has great impact on the social life of the older people in the study area. The climate change has disturbed the season and increase the chances of flood which destroyed the house building, land and infrastructure of the community of District Nowshera which latter on affected the livelihood of all people of the study area while also affect the social life of the older people and disturb their health and make the environment unfavorable for older people and create different problems to older people in the study area. The younger people due to unavoidable circumstances have left the houses for the purpose of livelihood and then the look after responsibilities fell on the shoulder of the older people. Sometime load shedding affect the sleepiness of the older people and mosquitoes disturb their social life which latter on become ill which affect daily activities of the older people, so climate is the factor which make the older people life misery. On the basis of problems credit should be provided to older people for their financial problems on free interest basis from the bank. Safety network should be established in the study area for solving the problems. Rescue team should be arranged for emergency problems of the older people in the study area. Health services should be facilitated in the study area for older people for social life improvement. Scholarship should also provide to older people for pushing purchasing power of the older people in the study area. Hujra should be developed for older people in the villages and city for their daily enjoyment.

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7. 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 proof reading and setting the paper.

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