

Local Perception on the Climate Change in Nepali Society: A Spatial Comparison between Urban and Rural Area of Dharan and Bhojpur in Nepal

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Abstract

Climate change has become a global concern and debatable issue worldwide in the present era. It needs to be discussed from rural community and urban perspective in terms of the local understanding, experience, and knowledge in environmental discourse. The local understanding on climate change in Nepali society is the spatial comparative analysis of understanding to the environment from the perspective of local people. Being spatial comparative studies, it compares the understanding of environmental change of people among rural and urban areas Province 1 of Nepal. It underpins the interpretive research philosophy based on the qualitative research approach, employing the convenience sampling of non-probability sampling design with in-depth interview, and observation as the tools of data collection. The six research informants, three from the rural areas of Temkemaikum of Bhojpur district and three from the urban areas of Dharan Sub-metropolitan City of Sunsari district have selected for the perception and experience collection for the comparative study. The finding has revealed that the both people of urban and rural areas are noticing the climate change. However, their understanding has varied based their knowledge, understanding, and experience. Though the study has focused on climate change, it has been recommended for researchers, policy makers, and policy implementers for environmental discourse in further research in Nepalese context.

Keywords: climate change, environmental degradation, community perceptions, temperature, rainfall, community understanding

Introduction

Environment as global concern has embedded climate change as part of environmental totality (Britton et al., 2021). The climate change, particularly increasing temperature, unusual rainfall, and the like determines the quality of environment. It is directly and indirectly related to the livelihood of local people and vice versa. The current discourse on environment and climate change issue has to be focused on "accumulated precipitation, precipitation intensity, precipitation type, rainfall, snowfall, and radar reflectivity" (Mekis et al., 2018, p. 71). Similarly, environment is the term which denotes to our surrounding which includes earthen surface, bio-sphere and available all things which are found in our surrounding (Kumar, 2018). The physical life of all creatures is possible due to the life supportive environment of the earth. It is the life line of creatures created in the earth. It denotes to "the sum total of external condition which surround man in a given interrelationship which exists among them and human beings, other living creatures, plants, micro-organisms and property" (Herkovits as cited in Kumar 2018, p. 315). There is the close relationship between society and environment. On the one hand, society is sustained and situated in environment and on the other hand, it is also seeking support to its sustainability from the society.

All the social organizations, social behavior, economic activities of human beings and the likes are more or less shaped by the nature (Pretty et al. 2003). Human beings are not only social animals but also the economic beings. Human beings have to maintain the warmth of their body and have to get energy to live easily in this earth. For this purpose they involve in the economic activities in the society. In doing so, they use the natural resources to get life easy for their survivals. For example, a farmer exploits land forest for their survival, a man in the river valley adopts fishing as their life supportive activities, a pastoral community use grazing land and forest to rear the livestock and gets survivals, and a land businessman dissect the land into different pieces and earn profit. All of those examples of economic activities of human beings are associated with the environment directly or indirectly. Similarly, environment is also greatly affected and shaped by the human society and human made environment. It means there is the close relationship between social network or society and our surroundings.

Statement of Problem

The issues of climate change and environment has become the global concern in present era as it has impacted on ecology, human survival, and socio-economic aspects. The number of studies are there on the issue from technical sense with the perspective of environmental science and macro level surrounding (Verma, 2018). Those researches literature have concerned with technical data. However, there are somehow the studies on climate change and environment concerning the perception, experience, and understanding of local people.

Research Questions

- What is the experience of the common people on the environmental change of the rural community and urban community?
- Who are responsible for the environmental degrading in their grassroots views?

Research objectives

The present research work has situated:

- To explore the actual situation of the people experiences on climate change and environment of rural and urban community.
- To explore the responsible factors on climate change and environmental degradation in the grassroots level of rural and urban comparatively from the perspective of local people.

Significance of the Study

The study has tried to discover common experience of local people of Dharan Sub-metropolitan City (Ward No. 11) of Sunsari district and Temkemaikum Rural Municipality (Ward No. 8), Bhojpur district. It has tried to digging out the common people's perception about the responsible aspects in climate change and environmental degradation. Similar vein, it has tried to reveal live views on climate change and environmental degradation and its impact collecting the result of climate change on their activities to fulfill the gaps in the studies of environmental sociology. It is helpful to understand the climate change and environmental degradation from the actor centered perspective of sociology. Similarly it fulfills the gap between the macro level understanding and micro level understanding.

Literature Review

Climate change has effects on both rural and urban areas. However, the effects are varies based on the build structure of human society. The rural and urban population have experienced climate change differently as Andrić et al. (2019) has argued that there are many effects on the created environment of urban areas especially the growing temperature creating by the concrete infrastructures. Similarly, rural sectors have experienced climate change and environmental degradation, and its causes differently. The rural people are experiencing the effects on their agricultural fields. Fahad and Wang (2018) have stated that climate change has affected the production of seeds, fertility and productivity of land, crops production and insufficiency of drinking and irrigating water, and the like. The study on local people perception on climate change has taken place reviewing the prior available related literature on two themes such as landscape of climate change and environment effect.

Landscape of Climate Change

Climate change has taken as the unstable temperature, unusual and uneven rainfall, and effect in eco-system. It has become the issue of discussion globally after 18th century as human activities has become the significant factor for climate change (Schlosberg & Collins, 2014). Similarly, Centre for Development and Environment (2014) has opined that the urbanization, market integration, unnecessary competition for resources use, spatial movement of the people, and the like are responsible factors for climate change. In the context of Nepal, Giri et al. (2021) has argued that "Communities living in informal settlements experienced higher exposure to climate risk with lower adaptive capacity" (p. 1). The livelihood of both rural and urban people is directly related to exploitation of the natural environment, particularly rural people and poor people of urban are using the forest resources for their survival. It is also responsible for the climate change. Similarly, climate change is a part of environmental change. Climate change is the central issue to be discussed in the debate of the development and the ways of survivals (UNFCCC, 2016). "The trend from 1975 to 2005 shows that the mean annual temperature has been increasing by 0.06 °C while the mean rainfall has been decreasing by 3.7 mm (-3.2%) per month per decade" (MoPE, 2016 as cited in CBS statistical report 2016). Climate change is creating threats to the several parts of human society and presenting the extraordinary and unimagined events in the human society. It is creating the problem to the man of grassroots level to the policy makers. Similarly, it is affecting the lives of animal's world, plant world and creatures of the nature. It has become global and local concern with similar factor responding for bringing change in climate.

Scenario of Studies on Environmental Change

Environment is not same in present day as experienced by our previous generations. It means our environment and climate is not static phenomena. Our all parts of society and natural gifts are change with the change and development of human society and progress made by only one superior creatures of the world. Environmental change is also associated with the pastoral and agricultural communities who have realized such changes (Poudel, 2020). It is reality in every part of our natural world and societies of the world. They are the real creatures who have experience the world since their birth in the world. Farmers have experience on the environment, a pastoral may have the bitter experience about his or her environment, and the auto drivers have another experience about the human world.

Environment is changing at a faster rate in this world. It is facing a serious problem. All the resources available in the natural world are going to finish it and earth is going to be empty in the sense of natural resources. According to (Cannan, 2000), all the resources of earth are consuming at the faster rate and a renewal of such resources is very impossible and that is creating the serious problems in the survival of human beings and all the creatures of the world are facing such problems in the society human activities are creating serious problems to our

environment focusing on the technological advancement in the mechanical sectors and fuel used by it which is creating the serious threats to our environment. Certainly, our developmental activities including all the infrastructure development and use of fuel especially petroleum product creating problems to our earth and human society. Growing expansion of road without environmental and technical assessment is creating the land sliding problems, deforestation, accidents and others' problems.

Kumar (2016) has opined that environment, sum total of all available things of our surroundings of the earth, has changed and our life is becoming difficult day by day. The main cause of this is the misbehavior of the human beings to the nature. Main wrong behaviors are polluting the water, air, and physical surface of the earth. Further he said that this type of behavior greatly affecting our life. Uncontrolled and unnecessary activities of human beings are responsible to the bad effects on nature. It is creating difficulties in the survival of human beings. Certainly, none other than us, we are responsible for the change of climate and low quality of environment in the world. In course of survive or in making capital we are doing work mercilessly to the world and our activities are turning to the slow poisons to ourselves.

Pretty et al. (2003) focused on the sustainability of the environment. Sustainability of the environment is in the risk condition due to the human economic activities with the help of advance technological development made by the contemporary society of the world especially by the developed countries. More or less we all are responsible for this misfortune. However, the level of misbehavior is varying from country to country, region to region, and community to community. Similarly, we are tempted from the earning capital and creating the serious problem in the environment, on the other hand, the government, policy makers, and planners are not giving alternatives to the common people for their survivals.

From the reviewing the related literature of climate change has shown that the prior research studies either focuses on the discourse of climate change, responsible factors, risk, and adoptive capacity or climate change as a part of environment and human survival with the effect of growing temperature and uneven rainfall, and the like. Similarly, the literature concerning to the environment has shown that the studies have concerned with the environmental dynamism, state of environmental degradation, environmental change and impact on human survival, environmental deprivation by human activities, human behaviours on nature, and environmental policy. However, there need to be prime concern of local people perspective on climate change and environmental degradation in terms of rural and urban locality comparatively which is lacking in literature in international as well as national context. The present sociological research study has focused on the perception, experience, and understanding of local people comparing to rural and urban area to meet the gap in literature. Similarly, it has become the genuine issue which is relevant in the present era in the context of Nepal. However, the limited literature has shown the essentiality of the research study in this

concern. The study has accomplished to explore the situation and catastrophic relation between environment and human beings.

Theoretical Framework

Local people are the source of knowledge and theory at their level. It is developing and transforming continuously as they experienced their world. Local people are knower of their environment from the past. Theory and research are interrelated to each other. Theory guides the total research project. In this research project theoretical underpinning has occupied by the grounded theory. This paper focuses on the understanding and experience of the common people of both urban and rural area of different climatic zone. The grounded theory tries to explore the knowledge about the socio-economic movements and shapes the understanding of the members of community (Creswell, 2013). In this context, understanding and experience of common people is taken as the source of knowledge and their behaviors are shaped by such knowledge.

Research Methods and Materials

The study on local perception on climate change in Nepali society has situated for perceiving the knowledge, experience and understanding way of local people in research problem as Kothari (2010) has argued that research is the way of acquiring the answer of research question. Employing the interpretative philosophy with descriptive research design, the study has tried to explore the local perception of rural and urban people adopting the cross-sectional study at Temkemaum- 8 of Bhojpur district and Dharan Sub-metropolitan City -11 of Sunsari district. The study area has spatial difference where Temkemaum is rural area of Bhojpur from hilly region and Dharan is urban location from the Terai region. The comparative analysis on the perception of people from rural urban location has significant to understand the experiences of people on climate change and environment. The most of the studies have focused either in rural area or urban location though the understanding of people of rural and urban has different perception on their surroundings. The comparative study of those areas explores more reality about climate change and environment. The present study has focused on comparative analysis on the perception of the people of selected areas.

As the participant selection is primary concern for information collection from the local people, the study has adopted convenient sampling method of non-probability sampling for the qualitative study. The total six informants: three from rural and three from urban location to the study due to the limitation of time, resource, budget and nature of qualitative research. Data collection is the main important job in any research project (Kumar, 2006). In this research study in depth interview has been used as the tools of data collection. Similarly, observation method has also been used observe the gesture of individuals at the time of interview. Only three questions are asked in course of collecting information. The open-ended questions are

asked to them and their explanation made by them was taken as the note collection. Their understanding and experience about the environmental change, its effects and responsible causes are analyzed in a narrative way.

Results and Discussion

Understating of the Common People on the Environmental Change

Climate change is a serious problem for us and most of the people know about this scenario. According to CBS (2016) report "about half of the households (49.33%) have heard about climate change. Majority of households in the mountain (63.59%) and female respondents (60.92%) are found to have not heard about it". Nepal is also affected by the global climate change. In this research process some questions about the environmental change, its effects and causes are asked to the research participants. Out of those questions, one is that do you feel any change in climate especially in the rain fall, the temperature of earth etc? All research participants' presents their views about it and they all feel that climate change has been experienced since few decades. One participant A (48) (Name changed as the wish of Respondent) opines that climate has been changed since a couple of decades. He says:

I have definitely realized some changes on the environment. Especially hot temperature has been noticed in the winter season and cold climate in the winter season in somewhat. Similarly, after the beginning of summer season there the climate like winter season has been realized. Due to this condition the body feels illness. In my experience is used to rain in the past but now day there is few rainfalls in our surrounding. In the past, it rained in January and February season except the rain season. But now a day, even in the rainy season there is uneven rainfall.

It is the experience faced by the common people of the Temkemaiaum rural municipality of Bhojpur district. It shows that there is partly rainfall and climate cannot be predicted on the basis of past experience. The growing temperature is creating new climatic condition and their economic activities. Similarly, it has been affecting the life style of the individuals of the grassroots level.

Similar kind of views is expressed by the other respondent who was female character. According to her many changes have been realized on the climatic condition of the rural society. Especially B (50) talks about the growing temperature and uneven and unseasonal rainfall.

I have been realized many changes in our environment. There is no rainfall on time. Temperature is growing and mosquitoes have been found in the hilly region also. There is the hot climate due to lack of sufficient rainfall. The sources of water like ground

water, streams have been declining. There is no water in the streams at all. There is a fluctuation in climate in our surroundings.

Her view is also similar to the views of first respondents. It is also indicating the changing climate and growing environment and environmental degradations in the human society.

Here is an experience of an old man of 70 years who is coded as C. His understanding is also similar. He is also a respondent from the same village of Bhojpur district. He presents the real live picture of understanding of the nature from the perspective of the change. He says:

Babu (Addressing term with love by the senior to the junior male one), there was sufficient rainfall in the past. The activities related to the cultivation can be done on time. In the rainy season there is overflow of water from the inner part of the water, But now days these sources of water are disappearing. There is the hotter than the past. In the past I used here that hot climate is found in the Tarai region only. But now a day we are experiencing in our own mountain area. I used to experience such hotter climate in the bank of Koshi when we used go Chatara (A business center of Sunsari district for the people of hilly district Bhojpur) to carry the salt and kerosene.

This narrative shows that there has been change in the climate in the hilly region of the Nepal. He is also noticed by such changes.

Other three D, E, and F respondents have been selected from the Dharan sub metropolitan city of Sunsari district of Province no. one. They are also changing the environmental change but spatial difference is there in the climate change. D individual of 40 narrates change as:

I have been experienced many changes in natural environment. The time and frequency of rainfall has been changed. After Baishakh, there used rainfall in everyday in post meridian time. But now day that is not the case in this urban area. Cold climate was in it as the mountain region has but at present the temperature of it is increasing and we are feeling hotter and hotter every day gradually. I have been migrated from the hilly region for 20 years many changes are noticed during this period. At that time, every public tap were full of water after the 3:00 AM of every morning. But now a day we have not drinking water.

Similar views are of the E of 58 years and F individuals of 76 years. They all are of that climate change has been noticed.

Impact of Climate Change on their Surroundings

Another question to the research participants was related to the daily impact on your surroundings. All A, B, and C who were from the rural area of hilly region expressed their

ideas regarding the change happened in the agricultural product. They are of view that all fruits, crops and other which are cultivated in the lower altitude area have also been cultivated in the high-altitude area also. Individual A opines narrates as:

In the past, banana is not appropriate to cultivate. But now it is appropriate in our climate also. At present the banana will ripe within four or five months. Similarly, Musuro Dal is also cultivated in the hilly region also which was the main crops of Tarai region. Similarly, Bodi Ambak and others fruits are also appropriate for our environment also.

Similarly, Participants in the urban area opines that due to the growing temperatures the cold drinks are sold in the winter season also. Different types of diseases were created and other provisions are developed. Different sectors of society have been affected by the climate change (Government of Nepal Ministry of Forests and Environment, 2019). Generally, social, cultural and economic life of our society has been affected by the environmental change. Environment and development in the society are interrelated (Rickson, 2012). Thus, climate and environmental degradation has affected the socio-economic life of the human beings.

Responsible Person on the Environmental Change

All the six research participants A, B, C, D, E, and F opine about causes of environmental change in the human society. A, B, and C are unknown about the change of the environment; However, the research participants D, E and F sees human beings and their activities are responsible to the environmental change. They are of view that migration and uneven distribution of population and high density of population, unnecessary use of natural resources etc are the main responsible causes of environmental change and declining quality of environment. Similarly, they are of view that capitalist-oriented activities are responsible to it because it increases the maximum use of natural resources.

Spatial Comparison on Community Understanding of the Environmental Change

It is the work which is dedicated to the spatial comparison between urban and rural area of Nepal about the understanding of environmental change. Both people of rural community and urban community have noticed the climate change. Similarly, they also feel the change in their own surroundings. Especially people of rural area feel such changes on their agricultural items and their feeling on the growing temperatures. Similarly, the urban community also feels such change in a different way. They feel such change in the temperature as well as density of rainfall. Similarly, people do not know the causes of climate change but people of urban community say about causes of environmental change. Urban people opine that growing population, their activities, migration, unregulated developmental activities and uncontrolled use of forest are the prime causes of environmental change.

Conclusion

The environment has been changed. It is the facto of society. It is creating impact on the society. It is affecting the lives and activities of both rural community and urban community. However, their realization understanding is shaped by their experience, economic activities, and level of individual consciousness regarding health and daily activities. Due to this variation in activities, they have different understanding on the climate change and environmental degradation. It is the fact that both individual of rural community and urban community have noticed about the climate change on the different measures. It is the findings of this small research that human beings and their economic activities are responsible for the environmental change in the Nepali society. Similarly, migration, development and environment are interrelated (International Organization for Migration, 2012). If we do not balance between migration, development and environment, then the relationship affects each other negatively.

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