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Research Article

Population growth and Rural Development in the interface of Climate Change in Nepal: A review

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Abstract

The objective of this paper is to analyze the relationship between population change and rural development in connection with climate change in Nepal. Climate change has two directional relationship with climate change. Firstly, population growth and rural development act as anthropogenic factors for climate change. On the other hand, climate change and extremities impact population pyramid and damages the rural infrastructures. It is based on secondary data and published and unpublished literatures. The study reveals that there is a strong relationship between climate change, population change and rural development. Many rural people are migrated into the urban areas and young people are trying to shift in abroad for employment where climatic factors are increasingly push factors. Lack of skill oriented education entrepreneurship programs, agricultural extension program people are suffering from different problems. Self help program is needed into the rural areas. So government should rethink to implement the rural development program in Nepal. Poverty become the main sensitive issue of rural areas. Though the government has given emphasis on the rural development of Nepal, so the policy makers should do the research about the successful rural development program in Nepal.

Keywords: *rural development, population growth, climate change, demography, mortality, migration*

Introduction

About 80% of the total population in Nepal still live in rural area whose livelihoods are mostly dependent on natural resourtces. Climate change can impact the population dynamics, alter migration pattern, reduce the availability of natural resources limiting the options for rural livelihoods, food security, jobs and jeopardies rural development. Population change is simply the change in the number of people in a specified area during a specific time period. Demographics (or demography) is the study of population statistics, their variation and its causes. These statistics include birth rates, death rates (and hence life expectancy), migration rates and sex ratios. All of these statistics are investigated by censuses and surveys conducted over a period of time. The change in total population over a period is equal to the number of births, minus the number of deaths, plus or minus the net amount of migration in a population. The number of births can be projected as the number of females at each relevant age multiplied by the assumed fertility rate. The number of deaths can be projected as the sum of the numbers of each age and sex in the population multiplied by their respective mortality rates. For many centuries, the overall population of the world changed relatively slowly: very broadly, the numbers of births were balanced by numbers of deaths (including high rates of infant mortality). Infant mortality was high for various reasons such as ignorance, insufficient health facilities, and sometimes lack of food. Occasionally, farmers were unable to produce enough food for the population, resulting in death from starvation. However more recently, and especially in the 20th and 21st centuries, due to growth in technology, education, and medical care, the world population has increased rapidly, as many more people have survived to child-bearing age.

A positive population change, when the result of net migration plus live births minus deaths is positive, is referred to as population growth, a negative one is called a population decrease. Demographers study population change across time and place, and traditionally they place a strong emphasis on a long-range view of population change. In this paper, researcher address two questions about the strategy of studying this phenomenon. First, should the study of population change be anchored solidly at the macro level of populations as located in time and place? Second, should consider the micro level of individual actions and interaction that bring about demographic change to be outside the core realm of demography? Building on current and past reflections, on methodological arguments, and on actual practice in population studies. The scientific study of human populations and their change comprise two essential and complementary stages: discovery and explanation. Methodologically, and for clarity of exposition, researcher treat the discovery of demographic facts and their explanation as discrete stages. The two stages, of course, should be seen as interacting iteratively. The first stage of demographic inquiry should be aimed at producing solid evidence on population trends and patterns, as well as their associations across time and space. In this, the discovery stage, the production of demographic evidence is grounded in formal demographic measurement, which at times might require spatial or temporal statistical modelling, or both. 'Discovering' population trends and patterns is a macro-level challenge, albeit ultimately based on the collection of micro-level data. Informed by evidence produced in the first stage, the second stage in demographic inquiry should be aimed at explaining population change and predicting its future development. For this second, explanation, stage, a micro-level 'life-course' theoretical and empirical framework is essential in order to explain what has been discovered. The use of the term 'explanation' here relies chiefly on the generative approach to social science advocated by Epstein (2006).

Explaining population change means recognizing the fact that human actions and interactions, embedded in a macro-level context, are driving demographic events. In turn, these actions and interactions are driving population change at the macro level. The key challenge for the explanation stage is the aggregation of micro-level outcomes up to the macro level of population change—that is, the recognition that explaining population change cannot be confined to micro-level outcomes

but requires an understanding of the mechanisms through which the aggregation of micro-level behaviour shapes macro-level population change. In this view of the study of population change, both stages are considered as highly legitimate, complementary, and valued parts of demographic research. Across the world, rural areas are going through a demographic transition from high to low levels of fertility and mortality, while seeing out-migration to urban areas. In some rural areas, populations are no longer growing, but are declining. Even where the rural population still grows, much of this reflects inertial growth from former high fertility: in most countries the cohort of rural children aged zero to four is shrinking, presaging future population decline. Overall, rural population is growing less than urban population (so the share of national population that is classified as rural is declining). Most of the rural population decline (absolute and relative) occurs in rural remote areas. Rural metro-adjacent areas are growing (in some case as fast as urban areas).

Many rural communities are likely to experience further population loss in the future. In a population with fixed age-specific rates of fertility, mortality, and migration, all age groups grow at the same rate (Sharpe and Lotka 1911). Such a demographic regime characterized most of human history over broad sweeps of time and space. Starting in the eighteenth and nineteenth centuries, relatively steady declines in mortality began in Western countries. Such declines typically increased growth rates at ages under five years and above 60, the ages of greatest vulnerability to death (Coale, 1972; Coale & Demeny, 1983). These declines were followed after some decades by declines in fertility. Initially, fertility declines reduce only the growth rate at age zero, but eventually such reductions become visible throughout the age structure by reducing the number of people at any age relative to the number at any higher age. In the twentieth century, declines in mortality and subsequent declines in fertility have also characterized most of the developing world (Bongaarts, 2009; Lee, 2003). Finally Across the world, rural areas are going through a demographic transition from high to low levels of fertility and mortality, while seeing out-migration to urban areas. A second change is that dependency ratios are falling in rural areas, delivering a demographic dividend that can boost growth. The objective of this paper is to analyze the relationship between population change and rural development in Nepal.

Theoretical Review

Rural populations do not follow the same dynamics as urban populations because usually the underlying demographic determinants are different between these population groups. In some cases marriage at earlier ages in rural areas plays an important role, but, in general, health services, including reproductive health services, are less accessible in rural areas; and education levels, which have consistently been found to be negatively correlated with fertility tend to be lower in rural areas. There are a group of theorists who argue that rapid population growth is an intermediate cause of environmental degradation, not an ultimate or root cause. These causes vary from region to region and include poverty, warfare, polluting technologies, distortionary policies, and developed countries" demand for resources. Historical developments in rural India, Bangladesh, Sri Lanka, and China are the empirical basis of this study which offers a theory of rural development for all Asia keyed to fundamental humanistic values rather than narrower techno-economic considerations.

According to Malthusian theory, three factors would control human population that exceeded the earth's carrying capacity, or how many people can live in a given area considering the amount of available resources. Malthus identified these factors as war, famine, and disease. He termed them "positive checks" because they increase mortality rates, thus keeping the population in check. They are countered by "preventive checks," which also control the population but by reducing fertility rates; preventive checks include birth control and celibacy. Thinking practically, Malthus saw that people could produce only so much food in a given year, yet the population was increasing at an exponential rate. Eventually, he thought people would run out of food and begin to starve. They would go to war over increasingly scarce resources and reduce the population to a manageable level, and then the cycle would begin anew. Of course, some theories are less focused on the pessimistic hypothesis that the world's population will meet a detrimental challenge to sustaining itself. Cornucopian theory scoffs at the idea of humans wiping themselves out; it asserts that human ingenuity can resolve any environmental or social issues that develop. As an example, it points to the issue of food supply. If we need more food, the theory contends, agricultural scientists will figure out how to grow it, as they have already been doing for centuries. After all, in this perspective, human ingenuity has been up to the task for thousands of years and there is no reason for that pattern not to continue. A neo-Malthusian researcher named Paul Ehrlich brought Malthus's predictions into the twentieth century. However, according to Ehrlich, it is the environment, not specifically the food supply, that will play a crucial role in the continued health of planet's population (Ehrlich 1968).

Ehrlich's ideas suggest that the human population is moving rapidly toward complete environmental collapse, as privileged people use up or pollute a number of environmental resources such as water and air. He advocated for a goal of zero population growth (ZPG), in which the number of people entering a population through birth or immigration is equal to the number of people leaving it via death or emigration. While support for this concept is mixed, it is still considered a possible solution to global over population. Fortunately, Malthus and ZPG advocates were wrong to some degree. Although population levels have certainly soared, the projections show that the rate of increase is slowing. Among other factors, the development of more effective contraception, especially the birth control pill, has limited population growth in the industrial world and, increasingly, in poorer nations. Food production has also increased by a much greater amount than Malthus and ZPG advocates predicted. Concern about overpopulation growth has weakened, as the world's resources seem to be standing up to population growth.

Widespread hunger in Africa and other regions does exist, with hundreds of millions of people suffering from hunger and malnutrition, but many experts attribute this problem not to overpopulation and lack of food but rather to problems in distributing the sufficient amount of food that exists. Other dynamics also explain why population growth did not rise at the geometric rate that Malthus had predicted and is even slowing. The view explaining these dynamics is called demographic transition theory (Weeks, 2012), mentioned earlier. This theory links population growth to the level of technological

development across three stages of social evolution. In the first stage, coinciding with preindustrial societies, the birth rate and death rate are both high. The birth rate is high because of the lack of contraception and the several other reasons cited earlier for high fertility rates, and the death rate is high because of disease, poor nutrition, lack of modern medicine, and other problems. These two high rates cancel each other out, and little population growth occurs.

Material and Methods

This is based on secondary data. Library and demonstrated materials have already been used. Articles published by United Nations and ministry of population and different journals published on internet has been used.

Findings and Discussion

Rural population refers to people living in rural areas as defined by national statistical offices. It is calculated as the difference between total population and urban population. Rural population (% of total population) in Nepal was reported at 79.85 % in 2019, according to the World Bank collection of development indicators, compiled from officially recognized sources. Nepal - Rural population - actual values, historical data, forecasts and projections were sourced from the World Bank on November of 2020. Nepal rural population for 2019 was 22,843,197, a 1.33% increase from 2018. Nepal rural population for 2018 was 22,543,325, a 1.16% increase from 2017. Nepal rural population for 2017 was 22,285,143, a 0.85% increase from 2016. Nepal rural population for 2016 was 22,097,328, a 0.43% increase from 2015. Nepal's GDP grew 7.9 per cent in 2017 and 6.3 per cent in 2018. As of 2018, the country had a per capita income of US$1,012, with about 21 per cent of the population living below the absolute poverty line, and about 29 per cent of the population being multidimensionality poor (*Economic Survey* 2018, Government of Nepal).

Urban-rural disparities are high, and over 80 per cent of the population live in rural areas. Level of rural development in Nepal is low in comparison to urban indicators. People of rural areas have low access on education, health, communication, electricity, road etc. Similarly, Dalit, women, marginal ethnic groups, Madhesi people of remote area and disable people have very low access on basic human requirements. Different rural development programs have been conducted after 1951. The first rural development program in Nepal was Tribhuvan Village Development Program which was mainly focused on the development of agriculture, road, drinking water, education and health. Development programs in rural community by the initiation of Block Development Officer (Adhikari, 1982). Panchayat Development Program was established in the decade of 1960s which has three main objectives for development and change. They were institutional development, social mobilization and attitudinal change. Similarly, different integrated rural development programs have been conducted since the decade of 1970s and continued later giving priority on saving, road, training, health, agriculture, rural industry, nutrition etc. Experiments on the rural development in Nepal started since 1956 but its impacts are debatable. It is difficult to isolate benefits achieved through rural development program only, the role of local institutions have not been able to take initiative and generates resources (Pyakural, 1980:27).

Different rural development programs like Rural Infrastructure Work, Rural Infrastructure Development Program, Agricultural Road Program, Rural access Program, District Road Support Program, Poverty Alleviation Project, Remote and Specific Area Development Program, Periodic District Development Plan have been implemented in the Ninth five year plan for the development of rural sector specifically. Output of rural development or local development does not seem satisfactory due to the inability to prioritize project to rural development, lack of political consensus to the local development, no feasibility study on the rural development program and absence of local bodies. However, Rural Community Infrastructure Work implemented in additional 15 districts, 47 District Development Committees have prepared District Transport Master Plan, different suspension bridges have been constructed in the rural sector, different poverty alleviation project implemented in eight Tarai districts of Western Nepal in the Ninth Plan. The objective of Tenth Plan for local development was to minimize poverty by making available local people, particularly the people of socially and economically backward areas, caste, nationalities groups an access to services and benefits made locally available.

During the Tenth Plan, local development programs like local body strengthen program, policy and institutional reform programs, financial resource management program, human resource development program, local infrastructure development program, economically backward areas and people's upliftment and development program, social mobilization and self-employment program, integrated reproductive health and population education program have been implemented (Tenth Plan, 2002-2007). The goal of rural development is to eradicate poverty. However, only a few targets of the Tenth Plan have been achieved during the period of 2003-2007. Currently, interim plan has been implementing at the end of 2007. Major objectives of this plan are to reduce poverty, unemployment and inequality for social and economic transformation. It focuses on target program to the marginalized people, social mobilization, infrastructure development, strengthening to local bodies, regional development, reconstructing local infrastructure, and reformation of local governance for rural development and change. Level of rural development in Nepal is low in comparison to urban indicators. People of rural areas have low access on education, health, communication, electricity, road etc. Similarly, Dalit, women, marginal ethnic groups, Madhesi people of remote area and disable people have very low access on basic human requirements. Without committed development efforts through high level political consensus on the basis of concentration of poverty with diverse nature in the different communities, it will be very difficult to escape people from vicious circle of poverty.

Development and underdevelopment of Nepal is still being national issues and discourse due to the low access on education, opportunities, social security, health, infrastructural development and productivity of the different communities with momentous disparities. The gap between rural and urban areas should be controlled to attain national goal of development. It always want socially justiciable, equitable, prosperous, self-respected, independent Nepali citizen. Government should provide high priority on rural development legally and morally in the process of planning

and development in Nepal where huge volume of population is concentrated. Political commitment with consensus between the parties is essential to build prosperous and independent Nepal. It is only the way of sustainable rural development which will be fruitful to reduce poverty. Participatory model of development is fruitful to maintain sustainable development in the country.

National indicators of development are unable to represent the distribution pattern of development of different social groups and regions. For example, population below the poverty line of Dalits, hill ethnic groups and Muslims are 46%, 44% and 41% respectively. At the same time, facts in 45.2% of people from Himali region, 41.8% of people from Hill region and 37.4% of people from Tarai region are out of access on consumption of minimum level of calories. Similarly, marginal section and disadvantage group have very low access on social and development. Nepal has witnessed many important demographic changes since 1995 due to declining fertility and mortality rates, increasing life expectancy, increasing age at marriage and migration. New migration patterns within and outside the country have brought about structural changes in demography and human development. The census and national demographic and health surveys have unveiled different dynamics of population characteristics.

UNFPA Nepal is working with the government to address these dynamics that has inter linkages with the needs of young people (including adolescents), sexual and reproductive health (including family planning), gender equality and poverty reduction.

Conclusion and Policy Implications:

A strong relationship among climate change, population change and rural development. Many rural people are migrated into the urban areas and young people are trying to shift in abroad for employment where climate and extremities are the prime push factors. Climate change and extremities has direct impact population dynamics and jeopardizing the initiatives of rural development. However, the governments have given little or no attention for its adaptations and mitigations particularly in the rural and remote areas of Nepal. There is a need of policy focus to enhance households' livelihood options, making them more resilient if their resource-base changes. Similarly, government should promote climate resilient rural development initiatives, green economy and climate resilient infrastructures to reduce the rural poverty, disparities and which will ultimately lessen livelihood vulnerability, ultimately reducing the need for families to migrate because of climate change.

Additionally, lack of skill-oriented education entrepreneurship programs, agricultural extension program people are suffering from different problems including climate change impacts. Self-help program is needed into the rural areas. So government should rethink to implement the rural development program in Nepal. Poverty become the main sensitive issue of rural areas. Though the government has given emphasis on the rural development of Nepal, so the policy makers should do the research about the successful rural development program in Nepal considering the ongoing climatic impact.

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