

An analysis of major environmental threats to human security in Nepal¹

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Abstract

The paper mainly analyses the environmental threats focusing on climate change to human security in Nepal. Major aspects of human security are interlinked and interconnected in our context. Among them, human security offers much to the vibrant field of environmental security in Nepal. Environmental threats are linked to the overall impact on human survival, well-being, and productivity. A great deal of human security is tied to peoples' access to natural resources and vulnerabilities to environmental change. The major environmental threats in our context is the climate change which have widespread implications for Nepal, causing impacts to water availability, agricultural production, forestry, among many other detrimental effects. The critical threat of environmental security needs to be taken into serious consideration to save our succeeding generation. This article primarily interpreted the government action towards emerging environmental threat based on realist approach. For the study of theme of this article, descriptive and analytical research has been used to draw present major environmental threats in Nepal. With consideration to factors, this article attempted to identify the major environmentally vulnerable areas that are likely to hamper the overall status of human security in Nepal. This paper also tried to suggest the measures to enhance the environmental security considering prospects and policy focusing on Nepalese diverse aspects.

Key Words: Adaptation policy; Climate change; Environmental threat; Human security; Resource conflict

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Introduction

Nepal is a landlocked country with India bordering on its east, west and southern sides and the Tibetan region of China on the northern side. Nepal possesses a phenomenal landscape, from the flatland to the tallest mountains in the world (Delinic & Pandey, n.d.). The region adjacent to the northern border of Nepal is home to 8 of the 10 highest mountain peaks in the world, including Mount Everest (8,848 m) and contains large numbers of glaciers and lakes. These glaciers are huge reservoirs of freshwater in frozen form, which maintain a perennial flow of the major rivers of Nepal and the Ganges in India. Nepal's human security challenges are always predominantly exacerbated by ethnic and religious conflict, misuse of authorities, diseases, hunger, environmental degradations, rising crimes and other anti-social activities. More people lose their lives every day in Nepal due to malnutrition, poverty, disease, natural calamities, and the conflicts than any other factors. The threats related human security are becoming more prominent and posing greater threats to the stability and order of society in Nepal.

The emergence of the human security discourse was the product of a convergence of factors at the end of the Cold War. The increasingly rapid pace of globalization, the failure of liberal state building through the instruments of the consensus, the reduced threat of nuclear war between the superpowers, the exponential rise in the spread and consolidation of democratization and international human rights norms opened a space in which both 'development' and concepts of 'security' could be reconsidered (Wilson, 2006, p. 34). Nepalese Government is trying to settle the threats of environment especially climate change through conventional pattern of security. In our context, starting in 1992, climate change became an issue of considerable concern for Nepal. Global circulation models predict that the average temperature in Nepal will increase between 0.5°C to 2°C by 2030. This will have widespread implications for Nepal, causing impacts to water availability, agricultural production, forestry, among many other detrimental effects (Delinic & Pandey, n.d., p. 12). Likewise, in global context, food, shelter, employment, income, health, environment, and freedom from crime are some of the emerging dimensions of human security all over the world (Upreti et al., 2013, p. 37). Understanding the link between the environment and security in Nepal adds a new and critical dimension to security considerations its geographically vulnerable position. The notion of environmental security expands the idea of security to include the effects of environmental factors

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such as climate change and land usage within national interests. The increase in temperature has found to be more evident in the high altitude regions than in lowland plains and more evident in winter than in other seasons (Shrestha et al. 1999, Hasnain 2000, Liu et al. 2002). Therefore, Climate change impacts in Nepal demonstrate alarmingly increasing trends. According to a recent OECD report, Nepal's average mean temperature is projected to increase by 1.2 to 3 degrees Celsius in the next 40 to 90 years (Rijal, 2019, p. 3).

Theoretical perspectives on environmental threats

In this article, researcher has reviewed the existing theories on securitization and theories on human security. Researcher has mainly reviewed the realism, neo-realism, constructivism, and liberalism theories of international relations for the better understanding of the subject. Most of the literatures in Nepalese context are mainly focused on the traditional notion of the security, which completely failed to address the issues of environmental security, especially climate change. The international assistance towards diverse impacts of climate change should relate the liberalism theory applied in the context of economic power of the world. Likewise, the independent nature of state especially the impact facing by the LCDs is reflected in the isolated actions taken by the vulnerable countries. Therefore, the notion of security in Nepal should encompass areas such as livelihood security, environmental security, food and water security, biodiversity security, and so on. As a Himalayan country reliant on a diminishing glacial water supply and a country in which 83% of the population living in rural areas, Nepal is in a particularly sensitive environmental position (Khagram and Clark, 2003, p. 86). United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. Greenhouse gas is considered as the major force in causing the accelerated climate change. Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by unsustainable anthropocentric activities, and are now higher than ever" (Sapkota, 2016, p. 1). Like all LDCs, Nepal needs the assistance and support of developed countries for scientific energy technologies, advanced adaptation measures and funds to implement comprehensive plan to cope with devastating environmental threats. Nepal contributes only 0.027 % of global emission but it is listed among one of the most vulnerable countries.

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Therefore, environmental threat is, actual and requires urgent attention through joint, concerted, and immediate national and international efforts. This article has discussed the nature and type of environmental threats focusing on climate change in Nepal and desired response to mitigate vulnerabilities.

Environmental threats to human security in Nepal

Environmental threats are linked to their overall impact on human survival, well-being and productivity, in other words, aspects of human security. Human beings and social relationships become the objects, or preferably subjects, that are to be secured from environmental threats, not states (Khagram and Clark, 2003, p. 291). Environmental change can have direct and immediate effects on wellbeing and livelihoods. For example, water scarcity may not cause war but still engender insecurity by contributing to dehydration-related death, reducing food production, and undermining livelihood opportunities. Environmental threats can also affect a diversity of subjects ranging from individuals, families, communities, social organizations, various identity diaspora, and not only geographically concentrated governments and biological species of various kinds. Studies have demonstrated a strong link between societies most susceptible to environmentally induced conflict and those experiencing institutional, political, or economic weaknesses. As such, Nepal, which has experienced a decade of conflict, is in a particularly vulnerable position. It is often the most vulnerable segments of society, those people already in poverty, with little education and access to political power, who experience the brunt of environmental change. This environmental change can come in the form of environmental degradation, climate change, and resource scarcity including water and land shortages. Within Nepal, a country in which 30% of the population lives below the national poverty line and over 80% depends on the land for their sustenance, environmental vulnerability is high. The result of this vulnerability can lead to social instability and conflict (Bollinger, 2011, p. 3). Nepal's geographical location is in highly vulnerable position related to the potential impacts of environmental degradation and climate change. As a country in which a large portion of its population lives in poverty and a country without a strong institutional or political system, changing environmental factors have a higher likelihood of threatening human security in Nepal. The major visible impacts on Environmental security especially the climate change in Nepal are briefly described below:

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Flash floods and glacier lakes outbursts

Decreased resource availability because of climate change in areas already prone to conflict such as Nepal, can lead to immediate human security concerns. The impact of climate change on Nepal's landscape is significant. An increased risk of flash floods is a serious concern related to climate change in Nepal. Climate models predict intensified monsoon rains, thereby increasing the chances of flash floods. Glacier lake outbursts in Himalayan regions are another major concern. When the dams break, flooding occurs which has serious consequences for downhill populations. Increasing temperatures at higher altitudes is another serious result of climate change in Nepal. ICIMOD reports that Nepal is warming at a rate of 0.6 degrees centigrade per decade. This is causing less snowfall at higher elevations. A significant long-term impact of these high altitude changes is the effect on downstream water availability. Human security implications of climate change in Nepal are significant (Christian and Thapa, 2008, p. 1).

Nepal is largely dependent on climate-sensitive sectors, such as rain-fed agriculture, fragile ecosystem, and dramatic topography. While Nepal's per capita greenhouse gas emissions are negligible, the country is most affected by the negative consequences of climate change, such as flashfloods and droughts, glacier lakes outbursts or rising average maximum temperatures with a subsequent retreat of glaciers, and least able to adapt to a changing environment. A lot of attention has focused on glacier lakes outbursts. Although relatively rare events, in 1984, a glacier lake outburst in the Langmoche valley in Khumbu region washed away bridges, agricultural land, homes, people and it was felt more than 90 km downstream. It also damaged a nearly completed hydropower project (Christian and Thapa, 2008, p. 1).

Temperature changes in higher altitudes

Experts and local communities have already observed changes in temperature averages. According to the International Centre for Integrated Mountain Development (ICIMOD), warming in Nepal is on average at 0.6 degree centigrade per decade, higher than the global average. Most importantly, the warming in the Himalayas is far greater at higher elevations. The mid-hills area are used to be the main habitat of people and the impact of climate change is not very visible but those closer to the higher mountains seem to have greater awareness in terms of less snow coverage. The Sherpas are worried that there is no snow in the winter (Christian and Thapa, 2008, p. 2).

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Food security, resource scarcity, and environmental degradation

Nepal is a country highly vulnerable to food security issues, a situation that affects health, nutrition, livelihoods, and overall national security. The Food and Agricultural Organization of the UN considers Nepal to be a low-level food security country. Over 50% of all households in Nepal do not have food sufficient for even half the year (Adhikari, 1998, p. 321). As per various reports, major reasons of food insecurity in Nepal are unequal land distribution, low soil productivity, irrigation facilities, insufficient access to food markets and poorly developed agriculture infrastructures. Food deficiencies are pronounced in hill and mountain areas with 13 of 16 mountain and 21 of 39 hill districts having a severe food deficit. Nineteen of 24 districts in the mid and far- western regions of Nepal are food deficit (Government of Nepal, 2019, p. 24). In recent decades, population growth in Nepal, which is projected at 1.6% in 2011, has exceeded agricultural production, increasing poverty and bringing further insecurity to the country (Westing, 1989, p. 97). Finally, imbalanced resource distribution plays a large role in exacerbating the effects of environmental scarcity. As such, food security is a significant problem in Nepal with the agricultural context being a substantial contributing factor. Resource capture occurs when the supply of a resource decreases due to either depletion or degradation and/or demand increases (due to population and/or economic growth). This encourages the more powerful groups in a society to exercise more control and even ownership of the scarce resource, thereby enhancing their wealth and power (Homer, 1999, p. 73). The ramifications of a poorly fed society are increased vulnerable and therefore increased human insecurity.

The Millennium Development Goal's 2010 report shows a dismal picture of unbalanced development in Nepal indicated by widely varying Human Development and Human Poverty indices throughout the country. Such imbalanced development practices lead to skewed resource distribution and difficulty in ensuring equal and just access to natural resources. Scarcity and environmental degradation in Nepal contribute to increased vulnerability of populations dependent on the environment. This, in turn, has significant security implications for the security of people in the country (Brundtland Commission, 1987 p. 242).

Environmental opportunities for human security in Nepal

Focusing only on threats will overlook the environmentally related opportunities available to improve human security. Protecting and enhancing the environment can

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have very positive consequences for people's livelihoods, well-being, and opportunities for fulfillment. While environmental degradation increases the potential for deprivation, displacement, and disempowerment, ecosystem integrity is likely to reduce vulnerabilities. It is directly relevant to the lives and well-being of all people, especially the most destitute, in developed and developing countries alike. When looking at the local or micro-scale, examples abound of how a better environment provides opportunities for human security, improved chances for survival, realization of basic rights, and increasing human capabilities. For example, there is a vast potential for improving water management and access to sanitation through community-led, decentralized, and low-cost technologies and institutional arrangements. These include revitalized traditional water harvesting systems, low and no-water sanitation technologies, and demand-side management (Appleton and Chatterjee, 2001, p. 45).

Forests and trees provide a number of environmental services, including the regulation of the flow of water between soils and the atmosphere, the prevention of soil erosion and the provision of habitat to 'the largest collection of biodiversity of any ecosystem on the planet' (World watch Institute, 2002, p. 9). Such interconnections are also visible in society-nature interactions among individuals and groups, particularly political and economic power relations. Two processes, 'resource capture' and 'ecological marginalization', have in particular been identified. Resource capture occurs when the supply of a resource decreases due to either depletion or degradation and/or demand increases (Tuladhar et al., 2015, p. 27).

Mitigation measures towards environmental threat in Nepal

While emerging environmental issues cannot always be predicted, effective institutions, governance and policy is critical towards promoting environmental security. Community-based programs have been a critical step in this regard. Non-state actors also play an important role in building environmental security. For example, many conservation organizations in Nepal work to curb environmental degradation and encourage sustainable resource use. These organizations include WWF, IUCN, and ICIMOD among others. With the vastly diverse terrain in Nepal, such localized programs are the only effective way to ensure true human security. The connectedness of issues of environmental security to livelihoods, environmental degradation, land rights, food and water security, among other issues, requires a coordinated effort,

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which, if implemented effectively, will have significant benefits. Following mitigation measures will help to ensure environmental security in Nepal:

Implementation of environmental governance

Environmental governance is a precondition to achieve environmental security and ultimately human security as a whole. Bad environmental governance paves the way for fierce competition over available natural resources and ecological services that ultimately threaten vital ecosystems on which human beings and other species depend. The Rio declaration highlighted the fact that depleted environmental circumstances and changes in environmental quality affect living beings, cause natural calamities, and induce both violent and non-violent conflict, thus creating multiple threats to human security at the global, regional, national, and local levels, which needs to be seriously taken into consideration.

Management of environmental and resource conflict

Resource conflict is one of the major areas in environmental security discourse, as it is directly fueling insecurity. Various studies have demonstrated that resource conflict has remained a major concern and challenge over the past some decades. Hence, successful conflict management requires redefining the current paradigm and incorporating the concept of environmental peace and security to grant human security in Nepal.

Environment-friendly development

One major threat to the environment is an environmentally unfriendly development approach. Development interventions, particularly resulting from large projects, often do not care about the environment. Intensive industries produce noise, nitrogen oxide and many other chemicals, as well as solid waste that pollutes the air and water. Infrastructure such as roads, hydropower plants, and dams not only physically damage ecology and the environment but also displace large numbers of people and damage biological and cultural diversity. Balancing environmental protection and development requires an environment-friendly approach to development.

Sharing, learning and adaptation of policy towards environmental threats

Adaptive social learning, collective understanding, and determined actions are common concepts in environmental sustainability discourse. This adaptation requires

open attitudes, flexible environments, and responsible institutional arrangements. Every individual must learn the lessons from the past and work together to develop common response mechanisms to address environmental security challenges to ensure the human security as a whole. One of the major problems with the current climate change adaptation structure is the lack of overarching institutional structures in the country. It is urgent to implement climate change adaptation program to strengthen cooperative national structures, which can assist in the formulation of national adaptation strategies in Nepal.

Actions against outbursts floods and carbon sequestration

In an effort to mitigate the potential outburst of TshoRolpa glacial lake, water was drained using siphon pipes and by cutting channel through the end moraine to control outflow of water in the cooperation of the Dutch government (WWF 2005). This reduced the depth of the glacial lake by three meters and the associated GLOF risk by 20%. Further, an early warning system has been established in the 19 villages of Tama Koshi valley located in the downstream of TshoRolpa glacial lake to reduce the potential damage. Similarly, an early warning system has also been established in Upper BhoteKoshi valley and the establishment of the warning system has been proposed in DudhKoshi sub-basin of Khumbu region (Bajracharya et al. 2007). The Government has a strategy to maintain at least 40 percent of the total area of the country under forests and promote the conservation of biodiversity. The Government has announced a forest decade for 2014-2023 and various programs such as 'one village one forest' to make the forests a basis for national prosperity; and established a Rastrapati Chure-Terai Madesh Conservation Committee (Center for Excellence in Disaster Management & Humanitarian Assistance, 2015, p. 34). Such practical and progressive initiative should continue to mitigate the threats of environmental challenges.

Conclusion

Human security has evolved over the years from an early focus on incorporating individual and people-centric approaches into the definition of security to a new focus on how social, economic, and environmental change can cause or amplify violent conflict. Feminists, critical theorists, and postmodernists argue that dominant groups within societies have imposed particular interpretations. These have the effect of

promoting interests of some sections of society at the expense of others, underpinning a fundamentally unjust political and economic order. Recognizing the link between environmental security and other sectors provides a valuable tool for building dialogue and cooperation highlighting the value of the environment as a point for mediation. Utilizing a security perspective in conservation can provide key insights into best implementation practices, thereby building sustainable usage of the environment and strengthening human security in Nepal. An issue of shared concern amongst stakeholders is numerous and includes peaceful relations, a safe and reliable water supply, and biodiversity conservation. If environment is an important human security issue in the twenty-first century, then conservation of nature is an essential phenomenon for peace. Such cooperation is not only beneficial but, in fact, necessary in order for Nepal to face the increasingly pressing concerns of environmental threats, which have direct impacts on human security. Nepal should strongly advocate its concerns and be vocal about threats imposed by environment in international forum, the forum of LDC and Climate Vulnerable Forum.

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