

Climate Change Challenges in South Asia: A Case of Bhutan

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Abstract—The world has today become vulnerable to climate change. At a global level threats are being recognized and measures are being taken to address the impact of climate change. However, the issue of climate change has failed to make any political breakthrough in spite of many conferences taking place and agreements being signed. Negotiations take place like clockwork but still there is a lack of any concrete step being taken. With the rate with which climate change is taking place, it becomes very important for leaders and policy-makers to come up with certain solutions and measures at both multilateral and regional level to lessen the impact of climate change.

Based upon this view, Bhutan has many opportunities to work at a bilateral level in a number of areas to reduce the impact of climate change. Bhutan share many similar problems such as:

- 1: Occurrence of floods.
- 2: Population under poverty.
- 3: Loss of agricultural land and forest to growing urbanization.
- 4: Air, Water and Land pollution.
- 5: Energy Crunch.

The proposed research paper aims to explore whether the viable use of existing natural resources will help in achieving economic and sustainable development in Bhutan. The paper also attempts to see whether bilateral cooperation between Bhutan and other countries would lessen the impact of climate change and whether the issue will provide scope for greater cooperation on the sharing of technology and information between Bhutan and neighboring South Asian countries.

Keywords: South Asia, Bhutan, Climate Change, Environment, Energy Security, Environmental Security.

I. INTRODUCTION

Climate change has become a part of the agreement exchange in various countries around the world and still at the same time has yet to become a part of the South Asian countries policy programme as the region is in the grip of poverty, unemployment, illiteracy, malnutrition and many other issues. Countries in the region fail to understand that the common problems faced by them is centrally connected to climate change and that by not working collectively towards climate change, the aforementioned issues cannot be tackled¹. Impact of climate change in South Asia can't be understood solely on the basis of any one country as most of the region's environmental issues are transboundary by nature.

Climate change causes unbelievable stress upon the already delicate environment for the South Asian region. As

a result of climate change, the locale has felt a development in the overall environmental conditions presiding in the region. Climate in the region is undergoing change with temperature fluctuations, change in rainfall patterns and a rise in floods and droughts. Agriculture in the region is taking a massive hit as a result of erratic temperature and rainfall patterns due to climate change.

Higher populace and utilization levels have prompted asset shortage and natural instability which thusly has different ramifications crosswise over social, political and financial levels. These suggestions can possibly transform into future clashes. The pressure in the region is additionally intensified because of uneven asset circulation prompting relocation and asset-based clash in the area. An ascent in clashes supposedly has an unfavourable impact regards to the usage of natural safety efforts in the district because of absence of control. The area faces the inescapable risk of overflow impacts of natural degradation as South Asia is one enormous interconnected ecological zone wherein ecological issues in a single state can and will affect one or numerous states.

II. REGIONAL SECURITY AND CLIMATE CHANGE

Resources prevalent in the natural environment are for the most part unevenly distributed. Most of these natural resources are difficult to find or are altogether absent in numerous countries. A growing trend seen in various parts of the world is the rampant use of both renewable and non-renewable resources thereby causing irreversible damage to the environment. Because of growing political momentum regarding climate change, it is now becoming imperative for countries at regional level to collaborate together when it comes to climate change².

In order for countries to cooperate at a regional when comes to climate change, two noteworthy clauses need to be fulfilled in order to achieve at a regional level³ which is as follows: First being an assurance that the nature of the human condition must be protected and Secondly the use of sustainable resources must be done so in a sustainable manner.

Securing the nature of human environment infers the counteractive action of soil disintegration, of air contamination, and of water contamination, thereby inferring with the natural process of cleaning and ultimately becoming a threat to general wellbeing. Also, it can be further implied that the maintenance of the environment

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helps rather in preventing the eradication of species and at the same time prevents further degradation of the already degraded environment. The attractive quality of accomplishing regional security, in a nutshell, is the shortest way by which regional cooperation can be achieved without much tension⁴.

III. CLIMATE CHANGE & SOUTH ASIA

Climate change is a double-edged sword. On one hand it can pose as a potential threat to the general population, the global community and the countries while on the other hand, debasement of the environment by the global community can have diverse impact on international relations as these issues are transboundary by nature.

It also considers about the capacities of people, communities or countries to adapt to ecological dangers, changes or clashes, or constrained regular assets. For instance, Climate change can be seen as a risk to the security of the individual and the state. Human movement impacts on CO₂ emissions, affecting territorial and global climatic and ecological changes and consequently reducing the yield in agriculture. This can lead to food shortages which will then cause political debate, ethnic pressure and civil turmoil⁵. In contrast to potential traditional military dangers, environment threats are genuine and continuous by nature. Notwithstanding, only one out of every odd environmental issue will result in a security issue as most of the issues are produced from complex circumstances including environmental, political, social and monetary issues⁶.

- The attention on environmental issues in South Asia as on account of other developing countries is more locally or regionally based, for example, cropland, forested areas, water and marine assets on which the greater percentage of the populace are dependent for employment purposes. The region shares the following set of environmental concerns⁷:
- Misuse of land is rampant in South Asia. Even though having a piece of land is regard as a prestigious issue, there is widespread land degradation as a result of various malpractices, improper irrigation and agriculture practices, poor soil conservation methods, mining and rising deforestation. Erosion of land by water and air, rising soil acidity and salinity have made the land a scarce resource and has a trans-boundary impact throughout the region. Industrialization and urbanization have forced farmers to intrude into forests and other fragile ecosystems thereby causing deforestation. Rising trade in forest products, the introduction of invasive species, use of chemicals in agriculture and unchecked growth in tourism has led to a loss of ecosystems which in turn have an impact on the livelihood of the people living in the vicinity of these ecosystems. Change in climate too has an effect on land in countries such as Bhutan as people, due to temperature change, are now seeking higher elevation grounds to carry out farming practices, building of homes etc.; thereby spoiling environmentally sensitive areas.
- Water is another resource that facing the brunt of rising population. Most of the region faces a decline in water availability due to overuse of groundwater without

giving it proper time to recharge, thus creating severe water shortages. Water quality has also declined as untreated sewage, industrial effluents and seepage of toxins into the ground water and has become a growing concern. Due to uncontrolled dumping of toxic matter into the water sources, the water has become unfit for day to day consumption. Since the rivers in the region are interconnected, there arises the need for cooperation in order to come up with solutions and regulatory responses. Global warming also has a profound impact on the water resources as many of the South Asian rivers originate from the snowy peaks of the Himalayas. Therefore, countries such as Bhutan are going to face the brunt of diminishing water resources as water has a direct correlation to their economic growth.

- Like water, air is another resource that is not bound by man-made boundaries. Most of the countries in the region are developing and thus have an ever-increasing appetite for energy. Use of fossil fuels such as coal, oil and natural gas to meet the ever-growing energy demands has resulted in air pollution. The immediate effects of air pollution are acid rain, an increase in suspended particulate matter, rise in health hazards and deterioration in air quality. These effects are not limited to a particular area and have an overall impact on the region due to the trans-boundary movement of polluted air. An environmentally sensitive nation such as Bhutan will feel profound effects of air pollution in comparison to India.

Climate change is of great concern for an environmentally sensitive region such as South Asia. Due to climate change, the region has felt an increase in overall temperature, change in rainfall patterns and an increase in floods, droughts. Agriculture is taking a hit due to climate change as rainfall patterns are slowly changing due to which either drought or flooding takes place. Rural population directly faces the impact of climate change as traditional forms of farming are still followed. Higher population and consumption levels have led to resource scarcity and environmental insecurity which in turn has various implications across social, political and economic levels. These implications have the potential to turn into future conflicts. The tension in the region is further amplified due to uneven resource distribution leading to migration and resource-based conflict in the region. A rise in conflicts is seen to have a detrimental effect when it comes to the implementation of environmental security measures in the region due to lack of control. The region faces the imminent danger of spill-over effects of environmental degradation as South Asia is one huge interconnected environmental zone wherein environmental issues in one state can and will have an impact on one or multiple states.

IV. CLIMATE CHANGE: A BHUTANESE PERSPECTIVE

Globally speaking, environmental degradation is taking everywhere and is affecting every nation. Ever since the first



human society was established, degradation of the environment has been taking place since then and has grown manifolds since the advent of industrial revolution in the western hemisphere. With industrialized countries of the North being the major contributors of overall global environmental degradation, it is the developing countries of the South that reeling under the impact of global environmental degradation. Least Developed Countries (LDC's) like Bhutan are the worst hit due to the high rate exposure to global climate changes.

Situated on the slopes of eastern Himalayas and sandwiched between two growing economic giants, India and China, the Himalayan kingdom of Bhutan is truly an environmental paradise which in the recent years is under duress due to growing socio-economic needs of its people, the people residing within its neighbouring countries and of the people on the global stage on one hand and on the other the growing global climate changes which are having a steady impact on its own environment. In spite of being committed to environmental protection, the populace and the environment of the landlocked nation are highly susceptible to the impact caused due to global Climate changes. Rising global temperatures also threaten the economy of the country which is (a) dependent upon hydro-water projects for electricity generation purposes (b) tourism. Temperature has also made the glaciers retreat at a faster pace and is making the country vulnerable to flash floods. Environmental issues such as debasement of land, degradation of water and other natural resources, growing pollution concerns, migration etc., have and will have a huge impact on the overall architecture of the country.

V. CLIMATE CHANGE ISSUES FACED BY BHUTAN

Being one of the many least developed countries, Bhutan's population is around 7,35,553 and is projected to grown in the coming years⁸. Over the years has emerged as a principal actor among the developing and developed countries when it comes to the protection of the environment. In spite of its mountainous and rugged terrain the country has achieved growth and development by various policy initiatives that have boosted the national economy and at the same time conserving the environment. However, in spite of being at forefront of environmental protection, Bhutan faces a brunt of major environmental issues due to (a) the need to develop (b) global climate change. The situation of the environment in Bhutan is indeed very problematic. The country faces genuine environmental issues. Land is diminishing quickly with deforestation being rising rapidly. Population explosion, rising poverty levels, upgraded industrial activity, human resettlement has further intensified the major environmental concerns within the country. In order to uplift the masses, there is pressure upon the already fragile environment which is further aggravated by global climate change. For having a pristine environment, Bhutan has its fair share of environmental issues which are unique to its geography and climate. The very existence of the Bhutanese populace is further threatened due to climate change.

VI. BHUTANESE RESPONSE TO CLIMATE CHANGE ISSUES

Change in the environment is now being seen as a fundamental issue to be confronted the global human network. This stress has risen because of the way that our ordinary activities for the need for improvement and headway are provoking changes in the environment of the planet that in turn is essentially changing the overall temperature of the planet. Climate change, being a multidimensional issue requires help from any and every quarter. Climate change has brought both the developed and developing countries to the negotiation table in order to lessen the impact via cooperation. Diverse pieces of environmental debasement and change have affected the monetary and political setting of the whole wide world. The formation of a global environmental regime to tackle the issue at hand has taken place but due to disruptive politics being practiced there is nothing substantial that has been carried out. Rising contrasts between the North and the South have become a sort of Achilles tendon when it come combating global climate change as the North sees money in the form of aid and transfer of technology as the solution to the problem and the South see the existing issue as a result of the development policies of the west and cash in kind and technological innovation are the viable solutions for the problem of such a magnitude. Lack of consensus has only aggravated the issue at hand. In the light of previously mentioned issues, Bhutan face a situation wherein one hand it has develop for the sake of its populace and on the other protect its environment.

Bhutan, in order to protect to its pristine environment, has created comprehensive arrangements, laws, guidelines to help manage and us the environment in a sustainable manner. The Constitution of Bhutan states:

- Every Bhutanese is a trustee of the Kingdom's natural assets and environment for the benefit of the present and future generations and it is the major obligation of every citizen to add to the security of the natural environment, protection of the rich biodiversity of Bhutan and prevention of all types of ecological degradation including noise, visual and physical contamination through the adoption and support of environment friendly practices and policies.
- The Royal Government shall protect, conserve and improve the pristine environment and safeguard the biodiversity of the country; Prevent pollution and ecological degradation; Secure ecologically balanced sustainable development while promoting justifiable economic and social development; and Ensure a safe and healthy environment.
- The Government shall guarantee that in order to conserve the nation's natural assets and to prevent degradation of the ecosystem, at least sixty percent of Bhutan's total land will be kept under forest cover for all time.

- Parliament may establish ecological legislation to guarantee practical utilization of natural resources and keep up intergenerational value and reaffirm the sovereign privileges of the State over its biological assets.
- Parliament, by law, may declare any part of the country to be a National Park, Wildlife Reserve, Nature Reserve, Protected Forest, Biosphere Reserve, Critical Watershed and such other categories meriting protection⁹.

Bhutan, like India, has implemented Five Year Plans (FYP) for national development purposes since 1961. The FYP has foundations for the protection of the environment which is very much viable from its 7th YP (1992-1997)¹⁰ and the 11th FYP (2013-2018) which emphasis on the conservation of the environment to maintain balance between the development of the economy and the protection of the environment and at the same time working upon the development of various disaster management policies¹¹. The country has established the National Environment Commission (came into existence after the Paro Workshop on Environment and Sustainable Development in 1990¹²) which is a self-governing office that has been ordered to oversee policies, issues and law related to the environment and facilitate between various sectors in relation to environment programs. The commission also screens the effect of advancement on the environment and aims to put in place important controls, guidelines and impetuses to private and public sectors to accomplish sustainable development via the judicious use of the environment. The Himalayan Kingdom, in 1998, implemented the National Environment Strategy which focus upon the following three cross sectoral principles:

- Sustainable economic development can be carried only when there is effective resource management.
- In order for urban areas to grow, there is a need for integrated urban/rural planning.
- Development planning and management should be sensitive to Bhutanese culture and values¹³.

Environment is an integral part of the Bhutanese philosophy. Being a Buddhist nation, the country has policies that emphasis on certain aspects of the Buddhist religion with one of them being the conservation and protection of the environment. As per religious beliefs even before the advent of Buddhism in Bhutan, the environment is a part of the spirit world. Contamination of the environment leads to the death of the spirits as per the belief of pre-Buddhist religions. As per the Buddhist belief, the environment and all other living beings are to be respected in order for the development of the nation. For the nation to progress, national developed strategy should be developed by keeping the environment in mind. Keeping this mind, the country has come with aforementioned policies that aid in national development and the conservation and protection of the environment simultaneously. Seeing the western way of development which leads to the destruction of the environment, Bhutan has come up with own development procedures. Development in the Bhutanese culture means

the procurement of knowledge. Gaining knowledge is more important than development thereby leading to communal enrichment and ultimately personal development¹⁴. Based upon this viewpoint, the policy of Gross National Happiness (GNH) is followed rather than the western model of Gross Domestic Product (GDP).

Internationally, Bhutan has worked hard to spread the idea that development and environment conservation can go hand in hand and at the same time adhering to international norms and agreements in order to protect and conserve its pristine environment. A prime example being responsible when it comes to the environment is the use of hydropower for electricity generation purposes and lastly not ratifying any deals or agreements that counter the country's policies when it comes to environment protection.

VII. CONCLUSION

To summarize, Bhutan is a prime example of environment conservation and protection can go hand in hand with the national development strategy. And yet the land lacked Himalayan country has its own share of environmental issues. The country has started to see a variety of growing stress over the use of the limited natural resources. Growing use of fossil fuels and unsustainable consumption pattern is starting to have a dangerous impact on the climate of the country. Areas are becoming prone severe weather changes, floods etc. Rising development works and the unsustainable nature of these works have further accelerated the rate of environmental degradation in the country. Also, a majority of the population is rural, poor and is dependent upon sensitive sectors such as agriculture which is further causing environmental degradation and is also under impact caused by the ongoing process of debasement of the environment.

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