Climate Change - A threat to National Security of India- Understanding and Identifying the Key Threats to Indian National Security Emanating from Climate Change

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Introduction

Question of survival and security are the fundamental questions before any individual, community, group or state. This has always been the question of debate, discussion and writing in all the fields of knowledge. Apart of intellectual exercise, question or survival and security leads to conflicts and wars among individuals, groups and state. Perception of threat has been changing from time to time, but state (be it in the form of city state, nation state or some other form) was always the key actor in security. Some time it protected its people from external threat and sometime it created threat to its own people. Over the period of time, on the basis of time – space and ideology, ideas of threat are manifested in different forms.National security is about protecting the boundary from external actors. But what should be done when the external actor is not one state or two states? How to recognize the enemy? How to solve the threat in absence of clear enemy? These questions become relevant when we discuss climate change? There is no one single actor which can be made responsible for the climate change. Climate change is a problem which will impact all the actors in international actors. It has the capacity to pose a threat to national security of a nation.This paper is a humble attempt to understand these big questions in the light of climate change and Indian national security. We will deal with the question of threat India have and its capacity to deal with these threat. Paper is been divided into 5 sections.First section of the paper will deal with question of security in International Relations theory. Key aspects of security and its relations with human security and national security will be explored. Second part of the paper will deal with the question of climate change and global warming. What are the causes of global warming and climate change and what can be the impact of climate change on world security and how it impact national security? In this section, we will also discuss the measures taken for solving the environmental and climate change. Third section of the paper deals with impact of climate change on Indian National security. Traditional and nontraditional aspects of security will be explored in connection with climate change. Fourth section will try to look into the measures India has taken to reduce the impact of climate change on its National Security, at domestic level as well as on international level. Fifth section will find the problems in Indian strategy and end with few suggestions for a better mechanism to deal with climate change and its impact on national security.

Section 1- Security and Survival In international Politics

Issues of Security are primary objective for individuals as well as for groups. State is a larger group who claims to prove the security to its citizens. Thomas Hobbes writes In his analysis in *Leviathan* that psychology of individuals and states in an anarchic environment lead them to be fearful and uncertain about the intentions of the others. There is a state of war of all against all. So need of a leviathan become urgent to solve the problem of anarchy and state of nature. There is a jungle out there. But in the state of nature in international politics, states are left with only one option for their survival that is self-help and always prepared for war (Hobbes ch.1, 13 cited in Forde 1992). This analysis which was later given a systemic shape by Kenneth waltz (1979) in his *Theory of International Politics* provided the background for considering state as the primary unit for survival and security.

Later after the end of cold war this analysis was challenged as more people were insecure in their home states. There was rampant poverty, unemployment and civil wars within the states. States whose primary responsibility was to give protection to its citizen were violation the norms be it Indian army in Kashmir or Pakistani army in Baluchistan. States are spending a heavy amount of public money in the name of giving security from outside threats were at the same time were creating conditions for inside threats for the lives of citizens.

Survival in International Politics-

International relations as discipline have always been dominated by state centric view of Realism. For realist state is the coherent and unitary actor. Domestic issues also have importance but for theoretical usefulness state is considered as the most important actors in the international system. States are the units whose interactions form the structure of international political system (Waltz 1979 : 93, 95). Question of survival is about the survival of states in international system which is anarchic in nature. There is no world government and rule of

law which can punish the violator and this left state in the position to adopt self-help as the only way out for survival from the outside threats. Thomas Hobbes writes that there is a jungle out there and there is no rule of law in anarchy or state of nature (Hobbes ch.1, 13 cited in Forde 1992).self-help is necessarily the principal of action in an anarchic order.

Concept and Definitions of Security-
Security is equated with survival in realist theory of international relations. Whenever we talked about security it was about the security of the state from external threats which is the result of realist domination in the discipline (Booth 2007). But it is not about merely survival. Security has meaning which is more than survival. Arnold wolfer (1952) wrote an article on national security and described national security as ambiguous symbol.

 But his article on National security was side-lined in International relations discipline. And later Kenneth Waltz (1979) with other occupied the space of national security issues. For realist state was a unitary and rational actor and because of security dilemma state can't trust each other and the only solution for survival is building up more arms for its own survival or self-help .So national security means reduction in threats in military terms.

 The modern approach, which characterizes the period after the end of the cold war, has extended the concept of national security beyond the above scope and defines it in a holistic sense. Apart from military concerns and national perspective, it covers almost all the non-military aspects and non-state factors of security from economic security to environmental security, and from societal security to human security. In this case there is no difference between national security and overall security (Booth 2007).

Some definitions of security-
In Ian Bellamy's (1981: 102) words, Security itself is a relative freedom from war coupled with relatively high expectations that defeat will not be a consequence of any war that should occur. For John E Marz (1980) it is is relative freedom from harmful threats. In UNDP reports it says, " In the final analysis, human security is a child who did not die (because there was no shortage of food and medicine), a disease that did not spread, a job that was not cut(no unemployment), an ethnic tension that did not explode in violence(ethnic tolerance), a dissident who was not silenced (democracy). Human security is not a concern with weapons—it is a concern with human life and dignity.'' (UNDP, 1994: 229).

Is Survival Equal To Security?
In the powerful words of ken booth survival is about life and security is about living. Survival is about continuing to exist. It is an existential condition. But what is the importance of individual to just living without any dignity and basic rights. What is the point of living continuously in the conditions of fear, inequality discrimination, exploitation and oppression? It should be survival plus where individuals have freedom to make choices. Meaning of living is in the ability to ask the question why?

 Security is not just about survival. It is about survival plus (Booth 2007: 102) . Security is a condition that is not difficult to define; in each case the starting point should begin in the experiences, imaginings, analyses and fears of those who are living with insecurity, ill-health or low status. Those who lack it can define it better than anyone else (Booth 2007: 98).

Section 2- climate change- causes and impacts
Before going into the details of climate change and its impact on world, it is necessary to understand what we mean by climate and climate change.

 The climate can be defined as the general or average weather conditions of a certain region. It includes temperature, rainfall, and wind pattern over the long period of time. If it is happening for few days then it should not be considered as climate change. But if there is a pattern in temperature, rainfall, and winds then it is climate change. The climate system is a complex and interactive system. it consist of the atmosphere, land surface, snow and ice, oceans and other bodies of water, and living things (Climate Emergency Institute). According to oxford dictionary climate change is defined as,

> changes in the earth's weather, including changes in temperature, wind patterns and rainfall, especially the increase in the temperature of the earth's atmosphere that is caused by the increase of particular gases, especially carbon dioxide. (Oxford Dictionary)

 National Oceanic and Atmospheric Administration (NOAA) identifies 10 indicators of climate change, which are following-
1. Sea level, 2.
2. Melting of Glaciers,
3. Tropospheric Temperature
4. Snow cover
5. Temperature over land
6. Ocean heat content
7. Sea ice
8. Sea surface Temperature

9. Humidity
10. Temperature over oceans. (NOAA)

Causes of climate change-

Climate change is a complex process. It happened over a long period of time and involved many factors. Climate change is a broader concept which includes global warming also. Emission of Green House Gases is considered as the cause of global warming. Global warming means increase in average surface temperature of earth. There are two types of causes which are responsible for the changes in the climate and these can be categorized as Natural causes and man-made causes. In natural causes, volcanic activity, solar output, and the Earth's orbit around the Sun, are the main causes (climatechange.gc). In the man-made causes, emissions of greenhouse gases are most important factors. Green House gases include Water vapour, CO_2, Methane and Ozone. These gases keep the earth warm. In the absence of these gases, this planate would have freeze. Its keeps the earth warm by absorbing the needed heat from solar heat. But as the amount of these gases increase the amount of heat presence in the earth surface also increase. Over the last 2-300 years, man-made activities contributed in this increase. Earth's average surface temperature has rose around $0.74+\_0.18$ degree centigrade over the period of 1906- 2005 (IPCC: 2006). Industries are responsible for the large amount emission of CO_2, Methane, CFC, and Nitrous Oxide. Fossil fuel burning and deforestation contributed for global warming as forest convert CO_2 into oxygen.

Impact of climate change-

According to the estimation of Intergovernmental Penal on climate change (IPCC), this century might see a rise of temperature from 0.3 ℃ to 6.4 ℃. In southern Asia, the mean annual increase is projected to be around3.8℃ in the Tibetan plateau and 3.3℃ in South Asia and 2.5℃ in South East Asia (Pai: 2008). These changes in global temperature will affect all the spheres of life from food security, health, water availability to refugee problem, floods, drought and conflict over resources. These impacts can be explained as follows-

Displacement – Rise in the sea level can cause millions of people to leave their homes and countries. During the last century, the average sea level rise was 1.5 to 2 mm/year (Douglas 1997) . There are expectations that this will speed up in coming days as glacier will start melting at faster pace. It is likely to contribute to the movement of people within and beyond borders. Large scale migrations have to possibility of social disruption by increasing: problems of border control, pressure on public goods and services and rivalry over resources. Coastal countries like Maldives. IPCC writes,

> Because of their low elevation and small size, many small island states are threatened with partial or virtually total inundation by future rises in sea level. In addition, increased intensity or frequency of cyclones could harm many of these islands. (IPCC 2014)

Many low lying countries will also face submergence of coastal areas. States like Bangladesh and Sri Lanka in south will face a huge crisis over the land. More than 17 per cent land will be lost in next 40 years and this have the capacity to displace more than 18 million people. Cities like Mumbai and Karachi also faces these kinds of threats.

Melting of Glaciers – due to increase in the temperature Himalayan glaciers will start melting which is responsible for the perennial rivers in Asia. These rivers are the foundation of lives in many parts of Asia. Rivers like Ganga and Brahmaputra which has their origin in Himalayan glaciers will also be hit badly and affect the life as they will have less water in their streams.

Floods- sudden melting of glaciers will result in the overflow of the rivers. And this amount of water will be beyond the capacities of the river. It will result in the floods in the plains and other parts of the world.

Drought- droughts are also related to climate change. Extreme weather conditions are the signs of climate change. So droughts will be part of climate change. Long and severe dry spells will force people to leave their original places, as there will be no resource for life left in that drought hit region.

International Conflicts- International migration can lead to conflicts among the states. to escape disaster, people will cross the borders and host countries will not be ready to accept those refugees. And this can lead to a war among the states.

Food security- as land will be affected by floods and drought, it will impact food production. Countries like India, Pakistan and Bangladesh which are already struggling with the problem of food insecurity will find it difficult to make its people feed.

Health- foods, drought and high temperature can lead to vector borne diseases within the states. Diseases as malaria and dengue can make the health condition further worst.

Diversion of resources will also take place from welfare schemes to military establishment.

From the above description, it is clear that climate change, human security and national security, all are related with each other.

Measures taken so far to solve the climate change-

As impact of climate change stated becoming visible in front of international community, actors tried to solve this out. But as this issue was very complex and there was no consensus on how to solve the problem United

Nations took the lead in 1992 by creating United Nations Framework on Climate Change (UNFCC). It was an voluntary effort from the part of member nation to curb the emission of greenhouse gases. Countries from the developing world asked for more space for development and developed countries were left to do more as they were the main actors who polluted the environment so they should curb the emission first (UNFCC) . In 1997 countries signed legally binding treaty to curb the emission, which came to known as Kyoto protocol. it legally binds the developed countries to emission reduction targets.

Timeline of cooperation on climate change-

1988, November- IPCC established with the help of WMO and UNEP

November 1990- IPCC and Second World Climate Conference Call for Global Treaty

December 1990- UN General Assembly Negotiations on a Framework Convention Begin

May 1992- Convention Adopted

June 1992- UNFCCC Opens for Signature at Rio Earth Summit

March 21, 1994 -UNFCCC Enters into Force

April 1995- Berlin- Germany's then environment minister, Angela Merkel, presides over the first Conference of the Parties (COP 1) in Berlin, where Parties agreed that commitments in the Convention were "inadequate" for meeting Convention objectives

December 11, 1997- Kyoto Protocol Adopted to curb the greenhouse gases

July 2001- at Bonn A major breakthrough is achieved at the sixth COP meeting in Bonn, with governments reaching a broad political agreement on the operational rulebook for the 1997 Kyoto Protocol.

November 2001-Marrakesh- The seventh Conference of the Parties results in the Marrakesh Accords. It set the stage for ratification of the Kyoto Protocol. Here operational rules for International Emissions Trading, the Clean Development Mechanism (CDM) and Joint Implementation along with a compliance regime and accounting procedures, were formalized.

January 2005-EU Emissions Trading Launches

February 16, 2005- Kyoto Protocol Enters into Force

January 2006- Clean Development Mechanism Opens

December 2009-Copenhagan - Joint Implementation Mechanism Starts

December 2010 Cancun- The sixteenth Conference of the Parties results in the Cancun Agreements, a comprehensive package by governments to assist developing nations in dealing with climate change. The Green Climate Fund, the Technology Mechanism and the Cancun Adaptation Framework are established.

December 2011- Durban

December 2012- Doha

September 27, 2013- IPCC Releases 2nd Part of Fifth Assessment Report

September 2014- UN Secretary-General's Climate Summit (UNFCC website)

Section 3 Impact of climate change on Indian National Security-
Impacts of Global Warming On Climate of India
There has been alarming effect of global warming on the climate of India. Out of 35 states and UTs, 27 are disaster prone. Most of the disasters are water related. At some places it is because of floods and on others it is because of droughts. Climate is one the factor contributing to the poverty of the nation. Every years millions of people are displaces due to floods in Bihar, Uttar Pradesh, Assam and West Bengal. Due to lack of water for farming, farmers in bundelkhand, Telangana, Maharashtra and other parts lives in abject poverty. The process of global warming has led to an increase in the frequency and intensity of these climatic disasters. According to surveys, in the year 2007-2008, India ranked the third highest in the world regarding the number of significant disasters, with 18 such events in one year, resulting in the death of 1103 people due to these catastrophes (Haji Saud 2013) . And if climate changes more frequently it will lead to more poverty in the state. Following can be considered as the threat to national security due to climate change-

Temperature Rise- According to IPCC, the expected rise is around 3.3 ºC at the end of this century (Solomon et al 2007). Winters are expected to be more warmers than summers. This increase of temperature will lead to melting of Glaciers.

Sea Level Rise- Sea level is expected to rise from 0.1 m to 0.9 m. This much sea level rise will have significant impact on the people and their lives in the coastal areas. A one meter sea level rise is projected to have capability to displace approximately 7.1 million people in India. About 5,764 Km2 of land is e expected to be lost, along with 4200 Km of road (GoI, 2004b, cited in Chauhan 2011). Currently in India, urban population is growing faster than the rural population. The coastal of Mumbai (which has population of 11.9 million population in 2015), Calcutta (14.1 million in 2011) and Chennai (4.6 million in 2011) lie generally only a few meters above sea level. People will have the risks of storm and flood disasters. Rapid development of coastal areas, industrialization and urbanization, more populations is becoming vulnerable to climate-associated calamities and many have no choice but to move to safer places. It is estimated, according to Myres (1993) that approximately

142 million people may inhabit coastal India in 2050 and India's total number of flood zone refugees alone could be anywhere between 20 and 60 million, with 30 million as a conservative figure (Myers, 1993, cited in Chauhan 2009). People in the coastal areas will face problem of land loss, crop loss and unemployment. This combined with existing poverty level make the situation worse.

Monsoon change and impact on food security- as in the change of temperature course of monsoon will also change. India largely dependent on monsoon for agriculture, will have to face food security crisis as well as crisis in rural Indian household. Poverty will make their condition worse. As cited in Chauhan,

> The effect that global warming will have on the Indian monsoon is still unclear, but increased variability in the monsoon rains is probable (Solomon et al, 2007). (Chauhan 2009)

Floods- According to GOI data, 40 million hectare land is prone to floods. Every monsoon season in india goes through heavy floods. Brahmaputra basin and Ganga basin displace millions of people every year in the monsoon. Apart from this region, rivers in northwest also have the capacity to play a great havoc if climate changes. These rivers does not have a large cathment area and in the condition of heavy rain there can be floods in this region where Tapti, Narmda flows. Peninsular rivers Mahanadi, Krishna and Kaveri can also play a great havoc. Every year more than 40 million peoples are displaces from their homes (www.climateemergencyinstitute.com).

Impact of Flood in India (1953-2006)

Years in group	Average area affected in '000 hectares	Average population Affected in million	Average human loss in '000	Average cattle loss in '000	Average economic loss in million rupees
1953-57	6664	16.76	399	33	140
1958-62	6448	11.714	648	31.8	148
1963-67	4342	12.636	347.2	6.4	98
1968-72	7832	34.53	1503.8	98	1162
1973-77	9606	44.956	3022.2	186.2	2542
1978-82	9588	46.518	2379	249	6382
1983-87	9162	55.80	1775.6	105.2	17540
1988-92	8531	37.42	2109	96	14928
1993-97	6821.4	33.66	1992.2	73	16090
1998-2002	5382.5	26.89	2143.25	59.03	16863.3
2003-06	2867.5	23.864	1563.75	34.14	NA

Sources- www.climateemergencyinstitute.com

Droughts- Around 68 per cent area is drought prone and 33 per cent is chronically drought prone. Areas of Rajasthan and Bundelkhand experiences longer and very intense droughts in the country. Most of the area in vidarbh and bundelkhand depends on rain and in the absence of rain there is no crop which leads to crisis in families and society and farmer suicide. In the last 20 years more than 3 lakhs farmers have committed suicide in the country in these drought prone areas (Sainath 2015) . Climate change will increase these droughts which will impact the economy and lives of the people.

Migration- Migration is very serious issue in Indian national security which is related to climate change. As more than 17 per cent area of Bangladesh has the possibility to submerge under the sea, there will be displacement of millions of people living in these coastal areas (Chellaney 2009) . So in the search of life and security, they might cross Indian border, which they did in 1971..

India –Pakistan conflict over water sharing- sharing of Indus water among India and Pakistan isn't considered fair from Pakistani side (Nasrullah 2008). Baghlighar dam crisis was settled in India's favour and Pakistan is not happy with this arrangement (Pai 2008). As climate crisis will worsen and there will be more availability of

water to sustain life, Pakistan may use proxy war to achieve it targets.

India china conflict over water- Tibet is source of many Asian rivers such as Brahmaputra and Indus. But china is now starting many inter- basin and inter-river water transfer projects on the Tibetan plateau. (Chellaney 2009).   China is, also, building dams on every river, except Indus and Salween. This threatens the water available scenario in India and other neighbouring countries. As India and china water stressed economies, so they would live to have a great control over the rivers. This can leads to conflict of interest between both the countries. If china divert Brahmaputra towards north, at a time when there will be water crisis due to climate change, most of the Assam will face water shortage problem.

Apart from these issues Human security, Food security, Health security, Water security, Energy security, Unemployment, Use of armed forces for environmental crisis, Internal conflict will be the issue of concern and contention.

Section 4
Measures taken by India so far-
At the international level India is party to UNFCC as well as Kyoto Protocol. As emission of greenhouse gases is the key factor for climate change, and developed countries contributed more in this, it was considered the responsibility toward cuts in greenhouse gas emissions. It was a active player in the creation of UNFCC and Kyoto Protocol. It represented the voice of developing countries at the international level, but recent rise in its greenhouse gas emission due to industrialization process, putting pressure on it to change its position (Sengupta 2012). It still speaks the language of no commitment on GHG as it needs to build industries for poverty eradication and developed countries should play their part out of historic responsibility. Until Copenhagen India was successful in its attempt on principle of differentiation. United states wanted to erase these clause in specific and Kyoto protocol in general. India with the help of Brazil, china and South Africa resisted this move. But climate regimes were weaken in 2010 at Cancun agreement.

 At the domestic level at the same time India established a Prime Minister's Council on Climate Change (PMCCC) to evolve a coordinated national-level response to this issue in 2007. The purpose of this council was to provide oversight on key policy decisions. Next Year government launched a National Action Plan on Climate Change (NAPCC), containing 'eight national missions', with the aim of addressing climate change in a manner that would also generate development 'co-benefits' (GOI 2008, Cited in Sengupta 2012). These eight national missions are as follows-

1. National Solar Mission: deploy 20,000 MW of solar electricity capacity in the country by 2020..
2. National Mission for Enhanced Energy Efficiency: new institutional mechanisms to enable the development and Energy Efficiency strengthening of energy efficiency markets.
3. National Mission on Sustainable Habitat: it focuses on promotion of the introduction of sustainable transport, energy-efficient buildings, Sustainable Habitat and sustainable waste management in cities.
4. National Water Mission: integrated management of water resources and increase of Mission water use efficiency by 20 per cent.
5. National Mission for Sustaining the Himalayan Ecosystem: observational and monitoring network for the Himalayan the Himalayan Ecosystem environment so as to assess climate impacts on the Himalayan glaciers and promote community-based management of these ecosystems
6. National Mission for Green India: afforest an additional 10 million hectare of forest lands, wastelands and community lands
7. National Mission for Sustainable Agriculture: enhancing productivity and resilience of agriculture to reduce vulnerability to extremes of weather, long dry spells, flooding, and variable moisture availability.
8. National Mission on Strategic Knowledge for Climate Change- challenges arising from climate change, promotes the development Knowledge on Climate Change and diffusion of knowledge on responses to these challenges in the areas of health, demography, migration, and livelihood of coastal communities .(Sources:http://www.biodiversityofindia.org/index.php?title=Missions_of_the_National_ Action_Plan_on_Climate_Change)

Section 5
Suggestions-
1. Creating unified South
2. Balancing north and south
3. Balancing development and environmental cost at home
4. Creating integrated mechanism to deal with disasters
5. Reducing the impact of disaster through technology and better mechanism
6. International cooperation
7. Preparing the armed forces for risks

8. Putting pressure on china by engaging her into international politics and negotiations
9. Investing on health, education and agriculture
10. Impact assessment
11. Non-structural mitigation (Chauhan 2009)

Conclusion- India, as a developing country is facing and will face many problem in development. Natural disasters which results from climate change will put an burden on its development and progress. India has been a key actor in International politics from global south and it needs to maintain that position, otherwise it will not be able to garner the support for the change in policies which affect climate change. At the same time it has to maintain and strengthen its ties with developed world but these ties should not be at the cost of millions of its citizens and of south.

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