# CLIMATE CHANGE AND NATIONAL SECURITY: CONTRARIAN OR INTERRELATED?

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The geo-politics associated with climate change negotiations in the recent past, has offered a bitter picture for the world to behold. The yearning for opulence in the present-day world is so deep-rooted that saner thoughts of an inhabitable future are being banished from consideration. Since the world is defying nature by delaying the mitigating actions to halt the march towards climate change doom, the consequences are now becoming clear. There is near unanimity in the world that climate change would lead to scarcities of basic natural resources that are essential for the human race to survive. Availability of food, water and land would reduce considerably due to various factors such as sea level rise (global warming), increased desertification, droughts/ floods (glacial melt), all caused due to climate change. This fact is mentioned in successive reports prepared by the Intergovernmental Panel on Climate Change (IPCC) in the last two decades or so. Though the broad connections can be drawn between climate change and future security challenges caused by the complexities of resources distribution, this is only relevant if the source information is accurate and reliable enough to be able to drive real changes in strategy, policy and operations. Therefore, the first critical step in establishing a relationship

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between climate change and security must be to analyse the information needs of decision-makers around the process of climate change.

The IPCC is an international multi-disciplinary body of more than 1,000 scientists and specialists drawn from all member countries of the United Nations Environment Programme (UNEP) and World Metreological Organisation (WMO) working in three different working groups. The reports of the working groups on the dynamics of the earth's climate system, potential impacts of climate change, and the possible responses to the threat of climate change, including adaptation, are rigorously reviewed by more than 2,500 scientists and experts. Therefore, their findings (Working Group 2)[1] on the impact of climate change, which directly implicate these resource scarcities to come into play, are accepted worldwide without prejudice. There are many other independent and non-governmental organisations within India and abroad that have reached more or less the same conclusions.

Each inhabitant of this planet aspires, and rightly so, to his share of the earth's resources. No sovereign nation or individual can claim total control of these resources. Their scarcities would, therefore, throw up the larger question of proportional division, with diverse views on how and who is to decide the proportion. In the same context, the debate on viewing the carbon contribution of any country on per capita vis-à-vis total emissions basis is still raging between the developing and developed countries. One is reminded of the famous words of Benjamin Franklin "We must hang together, or we shall assuredly hang separately".

A parallel case study would indicate that the imperatives of maintaining supply of fast depleting fossil fuels and other natural resources by the energy hungry West has been a reason for the developed nations to coercively impress their political will in Asia (Middle East) and Africa. This scenario needs to be juxtaposed with the present Indian situation wherein almost 300 million people do not even have regular access to electricity (by a conservative estimate of the states facing energy deficiency) and these acts of the Western countries seem totally superfluous. Now if this scarcity was to

1. The IV$^{th}$ assessment report came out in 2007. It can be assessed at www.ipcc.ch/publications.

be that of something as basic as food or water for more than half the world's population residing in the developing nations, the tumultuous societal stresses that would accrue and their scale, would most definitely dwarf any rationale for peaceful coexistence. If the energy required to maintain only the quality of life and progress of a nation is a strong enough reason for nations to go to war, then deficiency of basic necessities of survival such as water, food or even basic habitat, due to the consequences of incremental and sudden climate change events, would most definitely qualify for causing worldwide disturbances and conflicts. The timelines for the eruption such conflicts cannot be accurately predicted; but it is within our ability to avoid it to a large extent. Thus, climate change and national security are serious and interrelated topics that the policy-makers need to take into consideration.

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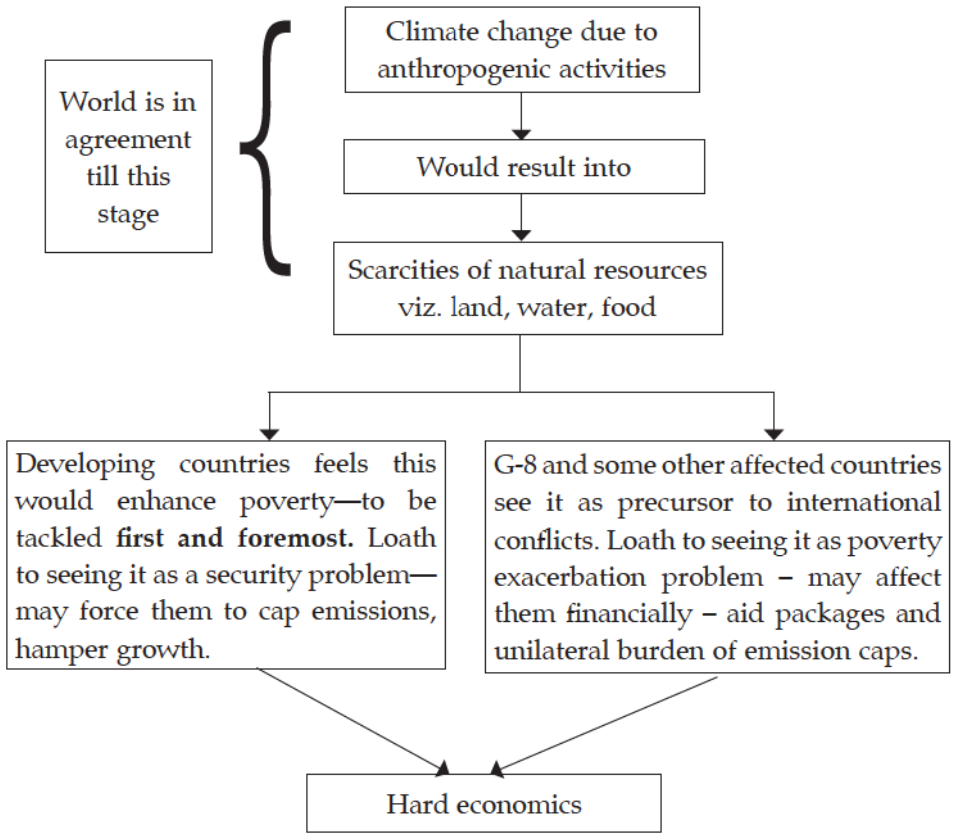
"Climate Change and Security" has been the topic of many scholarly studies in the European Union (EU) and the US in the last few years.[2] One thing which stands out as common in almost all these Western studies is the focus on international security as a consequence of climate change. It has been postulated that nations would go to war as the scarcity of resources and onslaught of national calamities caused by climate change like droughts, storms or floods, are faced by them. Situations in Darfur and other such hotspots are quoted in these reports. The Indian, and, for that matter, the developing countries' position has been at loggerheads with this line of thinking. They feel that it is the existing poverty in their country, caused by uneven distribution of wealth amongst nations, and which would get

2. An official EU paper, *Climate Change and International Security;* German Advisory Council on Global Change (WBGU) paper titled *Climate Change as a Security Risk;* the US Council on Foreign Relations Special Report, *Climate Change and National Security;* the CSIS/ Center for a New American Security Publication, *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change; American think-tank CNA paper on Climate Change and Security.*

exacerbated due to climate change, that needs to be eradicated / tackled primarily. It is also felt that the developed countries are sidestepping these issues of poverty eradication by bringing in the dimension of international conflicts due to climate change. It is being feared that with the security concerns firmly on the agenda, the developed countries would be able to push for binding emission cuts across the globe by linking these with trade sanctions and pressures in other similar forums, thereby affecting the growth and progress of the poorer nations. Two events lend credence to this line of thinking. In April 2007, the UK moved an agenda point in the UN Security Council for discussions on climate change and its security implications. This move was vehemently opposed by India, China and some other nations as they were against securitisation of climate change, deeming the Security Council as an incorrect UN agency to discuss the issue, having ramifications on how the issue is being and has been treated till now. The second event is more recent. The US House of Representative passed the American Clean Energy and Security Act on June 26, 2009, by a very narrow margin (219-212). It was passed after an amendment called the Waxman-Markey Amendment was introduced which calls for trade sanctions on countries that do not meet their carbon emission targets after 2020. The target that is laid down under the Act for the US itself is not substantial and does not meet the aspirations of the concerned global community. It is another matter that this form of trade protectionism has been rejected by President Obama. But these two events emphasise the presence of hidden motives by the developed countries in the securitisation of the climate change debate, watched by a circumspect developing countries caucus. These developments have blurred the underlying truth that climate change is actually a human security issue that confronts the entire globe.

On the face of it, the two positions mentioned above adopted by the developed and the developing country caucuses are incongruent, giving rise to the present debate on the interrelation between climate change and security. However, a deeper analysis would show that these two viewpoints are convergent and the parties concerned are drawing different conclusions from the same set of situational variables. Consider the following Fig 1:

**Fig 1**




From the figure, it is clear that the driver for the differing perceptions of the same problem is actually the economic impact of pursuing a particular thought process. Whatever be the compulsion in opting for a particular public posture, the bottom line remains that every nation would have to take into account the direct domestic impact of incremental and abrupt climate change on its security.

## CLIMATE CHANGE: NATIONAL SECURITY CONCERN—AN INDIAN PERSPECTIVE

There is a major implication for the Indian security due to climate change. The cause for concern is the presence of unfriendly, fragile and unstable

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states surrounding India. Be it Bangladesh, Pakistan, Myanmar, Sri Lanka or Nepal, all of them are going to be adversely affected due to the impact of climate change. The resulting societal stresses—economic or social—would force, and are forcing, their populations to depend upon a comparatively stable and progressive neighbour: India. The consequent drain on India's resources would bring about chaos due to the sharpening of class distinctions. This would also provide a breeding ground for terrorism and other forms of class struggle in these countries and cause an adverse impact on India's national security. How these consequences of climate change events pan out in terms of security problems for India would be briefly discussed so that the point is well appreciated.

*Land Scarcity*

It does not require a deep analysis to understand the conflicting claims by nations over Arctic territories and waters. When the Arctic ice cap melts due to global warming, it will open new navigable routes and it is also expected that the vast oil and natural gas reserves concealed would show up. Control over these resources would most definitely prove to be economically beneficial for whosoever can claim a larger chunk of the Arctic pie.

This scenario becomes abject when seen in the context of the untold miseries it would cause to the millions who will see their dwellings being submerged as the ocean level rises with the melting of polar ice caps and glaciers. It would see large scale migration of people from coastal areas to inland ones or across international borders, if there is no support structure within the state. The poorest would be hit the hardest as access to fertile land will decrease and become a major engine of climate driven conflict. In the Indian subcontinent, a less developed country like Bangladesh has already been adversely affected. The rising sea level, coupled with the onslaughts of extreme weather events

that regularly visit the Bangladesh coastline have forced large scale migration of people to the inland areas and across the borders. Since the country is poor, a large mass of people has moved in to India to eke out a living. States in close proximity like Assam, West Bengal and Orissa in east India which have similar language/culture, were fertile ground for their absorption and livelihood. However, the problem has attained such a large proportion with so many adverse climate events having lashed the coastlands of Bangladesh that even Mumbai (western India) has seen a large influx of these 'climate refugees'. India being the second most populous country, can ill afford such pressure on its own resources. The resentment against these migrants, be it in Mumbai or Assam, has come to the fore with political and armed movements against them, resulting in ethnic conflicts. These poor people are also easy fodder for vested interests that are inimical to Indian progress and are misguided to wage proxy wars. The chain of events outlined above is very evident in India. The souring of relations with these countries is a natural corollary. This is one of the security problems that India would have to cope with when climate change forces unfavourable alterations in its geographical proximity. This security concern has both internal and external ramifications.

*Economics of Water*

We have heard that future wars would be fought not for oil but for fresh water. The main sources of fresh water on earth are the polar ice caps, permafrost and glaciers. With global warming, these sources are depleting much faster than what has been witnessed in the past. It will cause (is causing) sea level rise, and floods in the plains in the near future and, finally, water scarcity would be felt by the middle of the century. The water scarcity would be exacerbated by reduced rainfall caused due to the changing weather pattern as a result of global warming. As per the IPCC fourth assessment report (Working Group 2) fresh water availability in Central, South, East and Southeast Asia, particularly in large river basins, is likely to decrease due to climate change and, along with population growth,

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it is likely to adversely affect more than a billion people in Asia by 2050. It will also affect marine and coastal ecosystems and more than a million people along the coastal region.[3]

Analysts have always postulated that water wars are not very likely as such disputes are and have been normally settled through adopting superior technology, better water management practices and closer international cooperation. The challenge is in applying these in politically sensitive and developing regions without raising political tensions and driving conflict; this will require strong support and preventive intervention from the international community. It is likely that most agreements will fail under the higher impacts of climate change, especially in glacier-fed river systems. Therefore, this theory would witness a change in the coming years. The Tibetan Plateau is a source of much water. It is Asia's principal watershed and the source of 10 of its major rivers, including the Yalong Tsangpo/ Brahmaputra and Indus. Forty-seven per cent of the world's population is dependent upon water sourced from the Tibetan Plateau[4] which in itself is not inexhaustible. The upper, mid and lower riparian nations in Asia like China/ India/ Bangladesh/ Pakistan have been facing water shortages and negotiating their quotas of water from rivers flowing from Himalayan glaciers, though not much success has been achieved in resolving all the issues. With China wanting to divert the Brahmaputra's water towards its arid north, the mid and lower riparian nations like India and Bangladesh respectively are crying foul. However, what needs to be actively considered is that the situation has not yet deteriorated to a level where water scarcity would start affecting life in these nations. Once that happens in the future, these tensions will have the potential to cause, firstly, internal conflicts between states and then the still worsening situation may force nations to resort to violent actions to seek their share.

3. www.ipcc.ch/ar4-wg2
4. www.atimes.com/atimes/China/JL09Ad01.html

Similarly, Bangladesh has been calling India's decision of constructing the Farraka Barrage on the Ganges (11 miles from the Bangladesh border) to divert water in the Hoogly River for flushing silt, totally ill-conceived.[5] The present situation is one of distrust. China, India and Bangladesh have dithered in sharing water flow data at various points on different rivers (Lohit and Ganges). The situation is so serious that this data has not been shared accurately even between neighbouring states in India lest it is used to demand a higher share by one of them. On a few occasions, the water tribunal and central governments bodies have had to intervene and resolve the related issues. India has already seen civil strife in the southern states over water. It is altogether another matter, though related to climate change, that presently these states are facing floods while a traditionally flood prone state like Assam is facing a drought like situation.

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*Food Security*

World Food Day celebrated every year on October 16 gives an impetus to food security, but there are major challenges to be surpassed for human welfare. In reality, India is passing through a transition from surplus production supply to greater demand for staple food commodities. When India, which has traditionally been a food exporter, reaches the international food markets for imports, the food prices start to go through the roof. This would be observed with more frequency due to many incremental and extreme weather events that are likely to visit South Asia in the near future as a result of global warming. As per the IV$^{th}$ IPCC report there would be a substantial drop (up to 30 per cent by 2050) in cereal production in Central and Southeast Asia. Crop simulation modelling studies based on future climate change scenarios indicate that substantial losses are likely in rain-fed wheat crops in South and Southeast Asia.[6] For example, a 0.5°C rise in winter temperature would reduce wheat yield by 0.45 tonnes per hectare in

5. www.sydneybashi-bangla.com
6. Fischer et al., 2002

**Any change in rainfall patterns poses a serious threat to agriculture, and, therefore, to the country's economy.**

India.[7] More recent studies suggest a 2 to 5 per cent decrease in yield potential of wheat and maize for a temperature rise of 0.5 to 1.5°C in India.[8] Enhanced variability in hydrological characteristics is likely to continue to affect grain supplies and food security in many nations of Asia.

Intensification of agriculture will be the most likely means to meet the food requirements of Asia, which is likely to be affected by projected climate change. The arrival and performance of the monsoon is not an insignificant matter in India. It is avidly tracked by the national media because agriculture in the country is largely dependent on rainfall for irrigation and even the national budget to some extent is based on it. Any change in rainfall patterns poses a serious threat to agriculture, and, therefore, to the country's economy. Scientists are predicting that because of global warming, this already fickle weather system could become even more undependable, with failure of the monsoon as one of the climate 'tipping points'.

With such a threatening food security situation developing in the agriculturally most active region of the world, the poor and vulnerable population all over the world would be adversely affected. Seen in conjunction with other scarcities like of water and land, this paints a chilling scenario in which the failed weak states and economically deprived population will become fodder for the international terror organisations. Feeble states unable to sustain themselves, may even make this a part of their state policy, with covert or overt support. The foreign policies of the affected and stable nations have to consider these realities in their decision matrix and, thus, see climate change and the related security consequences together, as cause and effect. It is, therefore, not surprising that the US and other European nations have already started detailed analysis of emerging security situations due to climate change, and their policies – both economic and foreign affairs—are being formulated in this inclusive context.

7. Lal et al., 1998; Kalra et al., 2003
8. Aggarwal, 2003

## THE SECURITY PROGRESSION

Some of the hesitation that India and others have in securitisation of the climate change debate is also based on hard facts of the problem. The global scenario of incremental and, to an extent, sudden climate change events, does pose a serious human security problem at present. So as the Green House Gases' (GHG) emissions rise due to the developed nations not honouring their commitments under the Kyoto Protocol, and with some developing countries carrying on with business as usual, the ambient earth temperature would increase. This would cause scarcities as outlined above, along with health hazards, loss of bio and marine eco-diversity, causing changes in the earning profile of a vast global population, hence, migration and other similar social impacts. The social impacts would include the consequences of adaptation techniques that countries are adopting for mitigation of climate change. For example, if any state in India like Chhattisgarh or Jharkhand is made to continue with its substantial forest cover in place of industrialisation, for mitigating climate change and for India to meet its forest cover target, it would amount to consciously not allowing alternate land use and the population being deprived of economic development. This scenario would imply that the poor tribals in these states would never see development and when they realise the reason for the same, the consequences would be ominous. The scarcities of resources at the present level have not yet assumed serious proportions. But they have resulted in adversely impacting the quality of life of, and causing misery to, a vast populace, be it in India or the US. These are human security issues which are being faced due to climate change.

At present, there are many lakes in the higher reaches in Bhutan that are formed due to the melting of glaciers. With global warming, the melting has increased to an extent that there is a serious danger of these lakes bursting their natural dams and causing flash floods of catastrophic magnitude.[9] With a worsening of the climate change scenario, the number of such sudden atmospheric events like cyclones and storms would increase. This would exacerbate scarcities of resources, cause large scale misery to people, and

9. balwois.com/balwois/administration/full_paper/ffp-762.pdf by Dr D Dey

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nations would be faced by an increasingly defiant populace; the human security problem outlined above would then degenerate into an internal security problem. With increasing inter- and intra-state migrations, the class distinctions would become fiercer. The earning-a-livelihood scenario would see a sea-change. Water resources would decline to an extent that upper riparian states within India, Pakistan, Bangladesh or China would be loath to sharing water in adequate quantity with the lower riparian states. This would seriously test the respective federal government's authority. Not only water but paucity of land also, due to sea level rise, would cause problems in governance. For example, the divide between tribal (Buddhist) natives and Bengali settlers in the Chittagong Hills of Bangladesh, is due to the paucity of land. This can only become worse with rising sea levels which would inundate the coastal areas of Bangladesh. Its adverse impact would first be felt internally, with the peace accords signed between warring citizens and the government facing serious questions.

The scenarios outlined above have the potential, in timelines that cannot be predicted with any surety, to degenerate into international conflicts. With worsening of the water, land and food situation, not only would neighbouring nations be affected but countries far off would face the heat. Thus, if Bangladesh and Maldives start to send 'climate refugees', some of them would find their way into the prosperous Western countries too. The social fabric in these countries would be severely tested. The Indus Water Treaty between India and Pakistan has withstood three major conflicts. This should not be construed as an extraordinary event as the pressure to renege on the same did not exist due to the availability of adequate quantity of water with the respective countries. However, now the Ravi River has almost been reduced to a mere stream in Lahore and there is pressure on the water systems of the western rivers, including the Indus, due to increase in population. With agriculture being seriously hampered in the two countries due to paucity of water – both in the rivers and underground—the Pakistani

media is full of stories of impending desertification. This situation has the potential to deteriorate into an inter-state conflict once the rivers start running dry after the melting of glaciers in the "third pole" – the Tibet Plateau. The rate of melting is increasing in each decade and some of the glaciers are melting at almost 15 m per year. Some glaciers in Himachal Pradesh, the source of the Ravi, have receded by almost 800 m in five years (2006 data recorded by Indian Space Research Organisation glaciologist Mr Anil V. Kulkarni )[10]. Similarly, once the water is actually diverted by China (for its arid north) before entering Assam and it results in drying up of the Brahmaputra, India and Bangladesh would be severely affected. Water is also a source of contention between Israel/ Palestine and India/ Bangladesh, with water sharing being termed as not just. The potential of conflict is, thus, brewing. Similarly, large scale migration of people between countries due to climate change events, which also challenges the ethnic and religious divide, has the potential to again cause international conflicts.

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From the above, it is clear that at present, the impact of climate change is limited to the human security issue. However, with the passage of time and if the world community cannot come up with a collaborative answer to mitigation efforts required to halt climate change, the situation would deteriorate to an extent that internal disturbances in the nations would overwhelm the governments. With dwindling resources and more adverse anthropogenic intervention in our environment, the situation is fraught with the danger of further escalating into armed conflict between nations over the distribution of resources.

## CLIMATE CHANGE AND THE INDIAN MILITARY

The impact of climate change on India's security as described above would definitely call for the Indian defence forces to incorporate this variable in their

10. http://archives.digitaltoday.in/indiatoday/20061106/environment2.html

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future military planning. Some of the direct impacts of climate change that the Indian military would have to contend with are listed below, in brief.

- The melting of glaciers and global warming would change the logistics of supplies to our forces in Siachin and other higher reaches in Himachal Pradesh, Arunachal Pradesh and Sikkim. Some land routes would be available and some lower Army posts would become better sustainable. However, due to increasing temperatures, the load carrying capacity of our air maintenance aircraft would be adversely affected. This would amount to more airborne resources having to be pitched in.
- The rising sea levels may affect the coastal naval assets in Goa and the Andamans, to name a few, which would have to be suitably relocated.
- Increased desertification would see water shortages in more parts in northwest India. This would have to be adequately catered for in the Army's training and operational planning.
- Due to the phase-out of certain ozone depleting chemicals (Montreal Protocol) used in military hardware, their management is a challenge that would have to be coped with.
- The Indian military would have to have a proper health care programme in place for its personnel and their families as the rise in health hazards caused by sudden climate change events as well as increased vector-borne diseases would have to be factored. This is specially relevant for military personnel as they are called to operate in some of the most inhospitable places in the country and abroad.
- Due to increase in ambient temperatures, the snow melting at the higher reaches would show a change in the pattern. Its implications on the situation across the Line of Control in Jammu and Kashmir (J&K) would need to be studied by the military. These issues are actually being faced presently by the Army.
- Last, but definitely not the least, would be the pressure on the military to cope with encroachments on the land due to the rising influx of poor migrants from

across the borders. This problem is acute in a democratic environment and is actually being faced presently in states like Assam and West Bengal.

## EMERGING OPPORTUNITIES: SUSTAINABLE DEVELOPMENT

After learning of the consequences of climate change, it would only be prudent that the global community synergises efforts in mitigating the climate change effects. The oft repeated position, of the 'developed countries, being the real culprits behind climate change due to industrialisation, hence, they should bear the onus of mitigating it', the principle of 'common differentiated responsibility', is fine and accepted. But this should automatically deter other countries (read India, China, Brazil, etc) from following the same unsustainable path towards development. The Brundtland Report, Stern Report and many such documents by the developed countries on sustainable development are mostly prismatic views. The real test of leadership of the emerging economies, like those of the countries mentioned above, lies in charting their own path to showcase their commitments towards a safe and secure climate. There are many opportunities which are available on this path which would ensure that 'business as usual' is not allowed to continue.

An extract from an article published in *The Times of India*, on August 10, 2009, by Mr Yvo de Boer, Executive Secretary, United Nations Framework Convention on Climate Change (UNFCCC) and the force behind the "Bali Action Plan", places the abovementioned line of thinking in the correct perspective:

> Judging by recent media reports, one cannot escape the impression that developing countries are being assailed with demands to accept legally binding GHG emission 'caps'. The fact is that not a single industrialised country is asking major developing countries to accept binding mid-term emission reduction targets. The international community, in drawing up the broad parameters for a climate change deal two years ago, acknowledged that industrialised countries must accept binding emission reduction targets. But developing countries are asked only to **limit growth of emissions in line with sustainable development needs and only if supported through finance and technology from developed countries.**

In effect, this can be interpreted as following:

- India can keep increasing its emissions in line with its development needs but by not following the developed countries' or 'business as usual' model.
- It can lower its dependence on fossil fuel for its energy needs by changing over to cleaner technologies paid for by the developed nations. The developed nations have to show their true commitments on this front if these mitigation techniques are to succeed. The modalities for such finance would require serious negotiations as it is here that the whole model may fall flat.
- The developed nations have to commit on periodic/ short-term verifiable emissions reduction targets, to see if their long-term targets (by 2050) are within the achievable realm.
- According to UN data, millions of new green jobs would be created globally by following these mitigation technologies. A country like India which has a huge base of technology intensive human resource is best placed to take advantage of, and use, this opportunity to match the emerging field of jobs as it did a couple of decades ago in the Information Technology (IT) sector. One estimate is that in India alone, nine lakh and one lakh jobs would be created by 2025 in the biogas and solar photovoltaic sectors respectively.

## CONCLUSION

The Hindu philosophy of *Karma* is very apt in this context "Do not only aspire for results but act and only then there would be a result". The time for action is now because tomorrow will be too late. The climate change and security relationship is here to stay and it would be myopic on the part of the security establishment not to take cognisance. The political compulsions of public postures need not deter the establishment from gearing up to the changing security scenario in their backyard. Failing to recognise the conflict and instability implications of climate change and responding by investing in a range of preventive action could be very costly in terms of instability, human lives and retarded development.