

# India's Vulnerability to Climate Change: A study of poverty to ecology

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**Abstract:** Ending poverty and addressing climate change has been two prominent issues for India's decision makers of all time after independence. Empirically, India is a home to 30 percent of world's poorest people and majority of people are living below poverty line with income only about \$1.90 per day. Also Climate change threats can be seen in both objectively (as a real threats) and subjectively (as a perceived threats). Therefore, poverty as polluter has three hypothetical assumption – 1) changes will be at climate even after poverty increase or decrease, but climate change will hit hard poverty at first, 2) eradicating poverty has been equivalent to combating climate change to the government of India because of everyday growing population, 3) rampant poverty will push back in being 'responsible power' which India recently seek for in international politics. The paper will test these assumption based on empirical grounding.

**Keywords:** poverty, climate change, energy dilemma, public interest, ecology.

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## 1. INTRODUCTION

The paper intends to understand India's the vulnerability to poverty and tends to explain the changing interest towards climate change debate. As ending poverty and addressing climate change has been two prominent issues for India's decision makers of all time after independence. Also Climate change threats can be seen in both objectively (as a real threats) and subjectively (as a perceived threats). Here scientific studies has proven that climate change is real and its changing day by day, but the perceived thread is narrow down understanding of whom is being threaten and why it's being threatened. Also International transparency of domestic commitment is crucial to the outcome of climate diplomacy. Moreover, the population rise cannot be ignored in domestic debate which itself is the driving force to climate change, where India today with the 17 percent of world population accounts for around 4 percent of current annual global carbon emission. They agree with an international puzzle, that the India should not guarantee a lot in commitment, but to reduce its emission GHG intensity growth by 20 to 25 percent by 2020 during and after the Copenhagen summit. If actual growth rates in India can be maintained, this would nevertheless imply that total emissions will double by 2020 and triple by 2035. The above mentioned "20 to 25 percent target can thus be possible if all the ministries and various departments continue their business as usual strategies" (Dutt 2010). Moreover, during the Paris Agreement - India announced to pledge to cut greenhouse gas (GHG) emission intensity by 33 to 35 percent relative to 2005 level by 2030. This is also because the basic premise for the government to act in terms of adaptation to climate change is based on public interest. Moreover, climate history is debatable, as common consensus has been approved to cut down its emission intensity below the pre industrial level. However, the so called "pre-industrial level" itself is debatable and no one have exact data of what to be called as pre-industrial, as some says 1970s and some says 1980s. Not going into the debate of pre-industrial level and making narrow down studies on India's related to its climate diplomacy, it is important to study what is the premise of India's negotiating agenda.

i) *Issue of Poverty:* Let's take the premise of 'poverty as polluter' as been deeply injected the mind or thought of policy maker of India from long time since the era of after industrialization. As a common consensus in the UNFCCC guidelines where India supported the most was based on the principle of 'Equity,' and 'Common but Different Responsibility,' and with their 'Respective Capabilities.' This clearly shows that India was not willing to follow emission reduction obligation and pushed the developed countries to financially assist in solving the climate problem. It also showed that India was more concerned about equity and had lack of trust towards international institutions because every countries was playing the game of face saving in terms of climate change.

ii) *Ascending GDP*: India as a developing state with its per capita GDP (nominal) of the USD 1408 per annum also doesn't show the large disparities amongst its people and regions. However, around 363 million people (30 percent of population) live in poverty, about 1.77 million people are without house and 4.9 percent of the populations are unemployed. A recent national-economic census indicates that economic and social deprivations are much higher in terms of availability of energy for common people. This will definitely weaken the State capital or create the Human insecurity which State centric theories fail to understand. If the problem lies within the State the weaker state is not just define by the military and economic power, it has much to do with the people who use this power to strengthen the State. Like every growing state is rational in its own formation, India is strictly judge by the capabilities of tackling the new challenges of poverty and climate change from within. Since the era of former Prime Minister Indira Gandhi, India has seen poverty as a biggest polluter especially for the developing countries. Therefore, in a nutshell eradication of poverty becomes the prime agenda even in terms of India's climate diplomacy. The loose understanding of climate change is a perception towards comfort of lifestyle but when it is about climate justice the sensation towards the future of poor from the peril of natural disaster.

iii) *Rising Population*: India's rising population and its link to poverty related to energy demand is another driving factor to lead climate change threats into both national and international political discourse. On the other hand climate change can force people to drive towards poverty and economic development with the cost of climate change will be unavoidable. While measuring the above factors into consideration, 'eradication of poverty' has been seen as the key agenda for India giving equal focus to climate change. Such climate change policies contributing to poverty reduction and poverty reduction policies contributing to climate change mitigation and the voluntary shift helps India to maintain its own adaptation policies and adaptation to climate change is based on public interest.

## 2. ANALYTICAL APPROACH

India's civilization has been seen in the virtues of living harmonious with nature. Indian philosophy is known as *darsana* (cognition) which gives inclination of Indian philosophical thoughts of worldview (Sue 2001: 8). As the need for preservation of environment and norms of decision makers are found in references to India's ancient texts. The current view of India's position to climate change and shifting its policies in decision making creates dichotomy between fix policies to policy making in domestic agenda and its implementation with or without the recommendation of international backing.

Firstly, lets categories Indian politics with pre-industrial era mindset that have influenced the thoughts of decision making, such as India was known for a rich country during the historical Golden Age or the Great Britain came to India to extract the resources of rich India making India poor and vulnerable. The claim of Indian decision maker in terms of present per capita emission was based on the colonial narrative of the past, which the industrial world is fully responsible for the climate hazard that many developing countries including India is facing in the present context. Thus, India's position to climate debate was based on equity where India was seen as a victim of its colonial past. On the other hand India's linked with cultural subjectivity where religion, caste is still dominating technically. Their belief system and its relations towards nature have been reflected in many political debates but same related to poor people is ignored in many cases. One of the best example in India is related to banning of cow slaughter because of its consideration to one of its deity, most holy considered river Ganga which is also the national river of India, worshipping sun as one of the deities, all contribute to India's values towards nature, but the same nature affecting poor are not considered practically even being in many legislation. Indian statecraft Kautilya's Arthashastra has been widely quoted by the Indian policy makers whose primary goal of the state was to provide peace, security and prosperity to its citizens (Kumar 2008: 2). If not poverty issue taken seriously, those peace and prosperity will be threatened from inside the country system.

Secondly, the view towards the present scenario of poverty as a cause and effect to climate change, which is being affected by environmental hazard and attempt to go for the call of sustainable development of poor and its relation to energy demand. For this huge collection of data with empirical evidence is most to justify the poverty as constraints. Hempel, empirical knowledge comes from experimental findings (Yurdusev 2003: 8). Scientific method is the method of sensory observation with experimental behavior and rational inferences (Weiman 1936: 184). India's position towards climate change though various scientific development, was given importance with Nehru's own book *The Discovery of India* and later using science as investigation such as utilizing Indian Space and Research Organization (ISRP) for monitoring greenhouse gas (GHG) emissions, motivating Indian Science Congress etc. In the global level the scientific

basis of understanding climate change and negotiation to climate change was provided by the Intergovernmental Panel on Climate Change which evaluates scientific claims of climate change. Environmentalist and scientist now have united in their opposition to use of fossil fuels but not so united in their choice of alternative energy sources (Ramesh 2015: 414).

Thirdly, the India's voluntary shift coming up with new environmental policies has to support the domestic demand (poverty reduction friendly scheme) in setting win-set for climate diplomacy. George Herbert Mead (1934) understood individual consciousness as a product of social relations and self is based on the principle of reflexivity where normative expectation and responses makes social coordination (Staerkle et al. 2011: 760). Cochran (2004) views Morgenthau as regards to normative thinkers when he highlights the moral responsibility of citizen to pursue the national interest and the responsibility of the state to seek for solution, i.e., by power. However, like Linklater's book *The Transformation of Political Community*, gives the definition of responsibility between persons requirement through moral inclusion (Cochran 2004: 3). The most prominent case of the IPCC's Fourth Assessment Report's (2007) was that the Himalayan glacier would disappear by 2035. This led Indian government to establish Indian Network on Climate Change Assessment (INCCA) which comprises 250 scientists drawn from 125 research institute to study, assess and research about climate change. Others like Indian Institutes of Technology (IITs) were seen for scientific assistance on the Mission Clean Ganga, rather than Ganga River seen as deity. Moreover, the ministry signed memorandum of understanding (MOU) with seven IITs and IIT Kanpur itself produced thirty seven reports (Ramesh 2015: 236). Since 2007, WWF report shows five river of Asia alone such as Ganges, Yangtze, Mekong, Salween, and Indus are fast dying as a result of climate change, pollution and dams (WWF report 2007). Since 20 February 2009, National Ganga River Basin Authority (NGRBA) issued an objective of a) ensuring effective abatement of pollution and conservation of the river Ganga by adopting a river basin approach to promote inter-sectoral coordination for comprehensive planning and management; and b) maintaining environmental flows in the river Ganga with its aim of providing water quality and environmentally sustainable development (NGRBA). Thus, question implies to India that – why India's negotiator (decision maker) should also emphasis more on adaptation focusing on public interest. Thus, it is important to study the above three phases of debate, because the major factors of how India thinks is deeply rooted in it.

India is the world's third largest greenhouse gas emitter, with tripled its carbon dioxide (CO<sub>2</sub>) emissions from fuel combustion alone between 1990 and 2011 which is predicted to increase by almost 2.5 between 2008 and 3035 (IEA, 2013). The projected increase in CO<sub>2</sub> emissions has driven India to become a key player in international negotiations on climate diplomacy because of international pressure to reduce its emissions. Here, one need to understand that decision makers have stressed on negotiation that despite India's national emissions are high, its per-capita emissions are low with 0.47 metric tons (mt), where 300 million people still live in houses without access to electricity, and as compared to the US with per-capita fossil fuel emissions of about 4.43 mt of carbon in 2014 and China with 2.05 mt of carbon (Boden & Andres, 2017). More specifically in decision making, Indian negotiator cited the report entitled *Global Warming in an Unequal World: A Case of Environmental Colonialism*, in articulating a per-capita framework of emission reduction targets, where Center for Science and Environment report also reframed the climate change issues as environmental colonialism, distinguishing it between the luxury emissions of the west and the survival emissions of the east (Agarwal and Narain, 1991: 3). They argue that the greenhouse emissions are caused by historic accumulation of developed countries and not by the annual flows of emissions. And climate change is not seen as threat as serious threat but climate politics are seen as threat to growth (Dubash 2012).

Historically, deprivation of Indian society has been seen as a result of the colonial legacy for nearly 200 years. Overcoming the deprivation was not easy in one night, but Indian decision makers stand to oppose colonialism by developing independent economy. Early nationalists such as M.G Ranade and Dadabhai Naoroji led to economic development of India. N.R. Sarkar (1934), the former president of the Federation of Indian Chambers of Commerce and Industry (FICCI) proclaimed that the potential growth of Indian economy to be backed by National Planning Commission. The *de facto* Planning Commission was established then with Nehru himself as its chairperson and with the Second Plan (1956-61) strategy of development was put into practiced. Nehru himself wrote for the Third Five Year Plan: "A high rate of economic growth sustained over a long period is essential condition for achieving a rising level of living for all citizens, and especially for those in low income people or who lacks opportunity to work" (Chandra et al. 2008: 227). However, with the massive crisis in the mid-1960s, image of India was changed from developing country to a 'basket case' (Chandra et al. 2000: 442-457). Two destructive monsoon failures of 1965 and 1966; two wars of 1962 (with China) and 1965 (with Pakistan); devaluation of rupees as initiated by former Prime Minister Indira Gandhi all led Indian

thinkers to carefully study India's growth failure along with crisis. In terms of India it was since December 1970 former Prime Minister Indira Gandhi campaign on the slogan of *garibi hatao* (poverty eradication) the Indian domestic strategic policy was to overcome poverty till now and in terms of environmental concern she also took initiative to set up a full-fledged Department of Environment in November 1980 (Chandra et al. 2008: 459; Ramesh 2015: 2).

### 3. POVERTY IMPACT IN INDIA

World Bank (2011) report "*The Poverty Impacts of Climate Change*" highlights, most developing countries are dependent on agriculture and other climate-sensitive natural resources for income, while they lack sufficient financial and technical capacities to manage increasing climate risk (*The World Bank* 2011: 1). Further, climate change impact shows to be more regressive, falling more heavily on the poor rather than the rich (ibid. 2011: 3). In 1981, 52 percent of world population lived on less than \$1.25 per day and in 2005 the rate has been cut in half to 2.0 percent (Chen and Ravallion 2010) followed by 22.2 percent in 2008 (World Bank 2012). In this case India is also vulnerable to climate change primarily because majority of people are living in poverty, with high illiteracy and also because of people living in sustenance agriculture (Hijioka et al., 2014; NAPCC, 2008). India rank 100 amongst 119 in Global Hunger Index since 2014, and 131 on United Nations Human Development Index in 2017. India is a home to 30 percent of world's poorest people and majority of people are living below poverty line with income only about \$1.90 per day (World Bank, 2016). BBC reporting till 2012 shows that Planning Commission (now has been changed to NITI Aayog) says 29.8 percent of India's (1.21 billion people) live below the poverty line which is approximately 360 million people living in poverty line. The poverty has become tumor to the Indian society which can even kill if not given care on time. Although there are various committees working to eliminate poverty and various studies have already been done in terms of eliminating poverty like Hashim Committee report on urban poor and to provide government schemes especially the National Food Security Act (2013). However, S. Mahendra Dev came up with two conclusions with the studies of World Bank by Gaurav Datt and others, as they stated that poverty declined by 1.36 percentage points per annum after 1991, compared to that of 0.44 percentage points per annum prior to 1991. Their study shows that among other things, urban growth is the most important contributor to the rapid reduction in poverty even though rural areas showed growth in the post-reform period. The second conclusion was that in the post-reform period, poverty declined faster in the 2000s than in the 1990s. The official estimates based on Tendulkar committee's poverty lines shows that poverty declined only 0.74 percentage points per annum during 1993-94 to 2004-05. But poverty declined by 2.2 percentage points per annum during 2004-05 to 2011-12. Around 138 million people were lifted above the poverty line during this period. This shows the success of reforms in reducing poverty. The Scheduled Castes and Scheduled Tribes poverty also declined faster in the 2000s. The Rangarajan committee report showed the faster reduction in poverty during 2009-10 to 2011-12. In absolute terms, the number of poor in India stood at 36.3 crore in 2011-12, down from 45.4 crore in 2009-10, as per the Mr. Rangarajan panel. Tendulkar Committee, however, had suggested that the number of poor was 35.4 crore in 2009-10 and 26.9 crore in 2011-12 (*The Hindu* 2014). Higher economic growth, agriculture growth, rural non-farm employment, increase in real wages for rural laborers, employment in construction and programmes like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) contributed to higher poverty reduction in the 2000s compared to the 1990s (*Livemint*). However, there are still many challenges to the government and its negotiator in terms of balancing both high economic growth and its consequence towards climate change. There is still a need of economic development and need of economic growth in whole country to overcome the poverty. This has directly linked with the developmental issues. And in the growing largely populated country like India, demand for huge energy supply is inevitable. Here high growth of population is one of the major reasons of poverty in India, which is followed by illiteracy, poor health facilities and lack of financial resources. Another important factor which is still stuck in some of the Indian societies is caste system and unequal distribution of wealth, which have created huge gap to what the Marxist thinkers called it as haves and have-not (rich and poor).

### 4. POVERTY AS POLLUTER / CONSTRAINTS

World Bank report, *Groundswell: Preparing for Internal Climate Migration*, shows that poorest people will be forced to migrant due to climate change (World Bank 2018). The poverty as a big polluter was the biggest challenge of all time, which itself was the threat to environment. India diplomatic game was firstly, to address the domestic issue "poverty as a biggest polluter" which will definitely give an impact to the national growth with the energy demand. Secondly, India being the leading state of South Asia and part of many multilateral groups, such as BASIC has to get approval for the

energy emission with the per capita basis and to win the financial surety from the developed States. Populated country like China is addressing this issue of energy demand and frugality by going non-fossils in all measures and neighboring countries like Bhutan has maintained the whole geography by covering with its greenery forest. It is to be noted that both countries have strictly maintained its norms, which will be discussed later. In addressing this two major issue, India has to come up with its INDC target not only as a showcase to other that they are doing good for the climate change but to be pragmatic seeking its national security issues such as food security and energy security demand in the day to day life.

Indian diplomacy has been seen from obtaining win-win situation at least in terms of climate diplomacy. The key model of new forms of growth was considered to be equitable, inclusive and sustainable development. Thus India agreed to actively engage in multilateral negotiation under the UNFCCC in a positive manner. The objective of engaging and cooperating with other states has been keeping forefront the idea of climate justice, the principle of Common but Different Responsibilities and Respective Capabilities under the UNFCCC. There has been a severe thought on the promotion of sustainable growth with the solution of technology and finance.

Keeping other issues aside, one of the major issues here is the State focus on eradication of poverty and its political gain towards the betterment of climate status in future. As the Prime Minister of India, while addressing the UN on 25 September 2015 said “We all believe that international partnership must be at the centre of our efforts, whether it is development or combating climate change. And the common but different responsibilities are the bedrock of our collective enterprise. We only speak of climate change; there is a perception of our desire to secure the comforts of our lifestyle. When we speak only of climate justice, we demonstrate our sensitivity and resolution to secure the future of the poor from the perils of natural disasters.” These have all to do with the sustainable development goals for its 1.2 billion people.

## 5. ENERGY DILEMMA

While engaging with the poverty issue other important factors such as pushing up the India’s politics was energy related to growing population cannot be ignored. The advent of urbanization and rampant deforestation has also given negative impact in the public opinion. As India is home to 18 percent of the world’s population but uses only 6 percent of the world’s primary energy (India Energy Outlook 2015). According to IEA preliminary estimates, Global energy demand grew by 2.1% in 2017 and carbon dioxide emissions from the use of energy rose again by 1.4 percent (World Bank 2018). It is projected by India’s Economic Times that India’s energy consumption grows the fastest amongst the major economies by 2035 and India’s consumption grows for fossils will be the highest (Economic Times 2017). A case scenario would be that India’s demand to gas expand by 162 percent followed by that of oil 121 percent and coal 105 percent, where renewable rise by 712 percent (nuclear by 317 percent and hydro 7 percent. However, India must achieve a high level of energy security to maintain its ambitious growth rate of 8 to 10 percent. India is also facing energy shortage which must be addressed in near future (Gupta, Shankar and Joshi 2010). If India is unable to meet its target it the consequence will be towards the failure to poverty reduction and the projected half of India’s population will continue to live below poverty line. By that time the urgency of climate change mitigation will be much higher leading constraints to fossil fuel based growth. Example, electricity generation has to increase from the 800tera watt hours per annum to 3250tera watt hours per year, which means that per capita electricity will rise to 0.25tera watt hours per person. This may lead to poverty alleviation but will impact on the rise in emissions from 1.2giga tones per annum to 4.5giga tones per annum (which is 3 tones per capita rise in emissions (ibid.) which is still lower than the US (Carbon Dioxide Information Analysis Centre 2010). The projected share on various energy sources as follows: coal 70 percent, natural gas 22 percent, hydroelectric 9 percent and nuclear 9 percent (Gupta, Shankar and Joshi 2010). In terms of nuclear current share for nuclear energy generating electricity is very low. Oil reserves in India are also very low and most of the time country depends on oil imports.

The Expert Committee on Integrated Energy Policy of the Planning Commission of India (2006) Report affirmed that apart from the stress on energy saving and efficiency, domestic sources of energy also must be tapped. It also says that all possible sources of energy must ensure energy security (including importing energy sources) with the following measures: 1) Energy efficiency in all sectors, 2) Emphasis on mass transport, 3) Active policy on renewable sources of energy including bio-fuels and furl plantations, 4) Accelerated development of nuclear and hydroelectricity, 5) Technology Missions for clean coal technologies, and 5) Focused R&D on climate friendly technologies (Integrated Energy Policy Report 2006). However, India’s oil, gas and coal reserves will be exhausted and in India’s sustain growth rate coal reserve

would disappear in 40 years (Kalshian 2006). The next report of April 2010 where former PM Manmohan Singh asked the Chairperson of Expert Committee Kirit Parikh a path to greener economy where he stated the great urgency in finding alternatives to coal based energy production (*The Economic Times* 2010). The study titled '*CO2 Emissions from Fuel Combustion 2017*' released showing that CO2 levels from fuel combustion increase in India from 181 million tonnes (MT) in 1971 to 2,066 MT in 2015, a 1,041% increase. Excluding China, India's emissions accounted for 46% of total emissions in Asia. The study also reflects that how emissions from sources such as coal, oil and natural gas rose over the years and emissions by different sectors in the country. In India, CO2 emissions from coal rose from 127.2 MT in 1971 to 366 MT in 1990 to 577.3MT in 2000, and 1495.1MT in 2015, which means an increase by 1075% over 44 years. Similarly, CO2 emissions from oil rose from 52.8MT in 1971 to 151.1MT in 1990 to 395.9MT in 2010 to 515.9MT in 2015, an overall increase of 877% over 44 years. CO2 emissions from natural gas however, saw an increase from 13.1MT in 1990 to 95.7MT till 2010 but declined thereafter to 53.6MT in 2015 (*Hindustan Times* 2017).

One of the important factor regarding energy security which is totally dependent on fossil fuels, 70 percent of Indian population which is in rural area are dependant not on fossil fuel but on biomass for their fuel requirement (India Development Gateway 2010). Although the growth of economy has been largely propelled in the service sector and agriculture remain very important component. The agriculture constitutes of the largest share of national income while the share has fallen from 55 percent in the early 1950s to 25 percent (Chand 2003). In 2009 the share has further fallen to 18 percent (United States Department of Agriculture Report 2009). It also to be noted that other sectors of Indian economy is also dependent on the agriculture sectors. The current figure from the Central Statistics Office (CSO) forecast that GDP growth in the financial year was slow to a four year of 6.5 percent in 2017-18 from provisional 7.1 paces seen in 2016-17, dragged down by deceleration of agriculture and manufacturing sectors (The Hindu, Jan 5, 2018).

#### ENERGY LINK TO POVERTY

India after 1991 liberalization policy, elite consumption has been the main driver of growth where sales of automobiles and other commodities only goes to the upper middle classes as in energy consumption. Energy generation which accounts for single largest share of India total emission which expands rapidly, this has very little to do with poor people gaining access to electricity. At least half of the poor people have no access to electricity and rapid growing energy sector represents growing power consumption by the burgeoning middle class. The nexus between emission growth and rising elite consumption cannot be broken unless the Indian development structure is egalitarian. Bidwai (2012) highlights that India's policy insofar derives from the basic premise that economic growth goes along with the current pattern, it cannot promote environmental sustainability and climate responsibility (Bidwai 2012: 105). Ramesh (2015), in his book "*Green Signals*" writes that both high economic growth and the goal of eradicating poverty in the present scenario require increase in energy consumption (Ramesh 2015: 414). He further adds the environmental friendly alternative energy resources are not achieved without environmental hazards and pitfalls. An excerpt from the "Letter to Prime Minister on Report by the World Bank on the Potential for Renewable Energy in India", shows that India has a severe electricity shortage where about approximately 400 million Indians are without electricity coverage. Which indicates India's per capita consumption is one of the lowest in the world. The Integrated Energy Policy (2006) estimates India needs to increase primary energy supply by three to four times and electricity generation by five to six times to meet the lifeline per capita consumption by 2031 (Ramesh 2015: 442).

#### PUBLIC INTEREST

Climate Change is a disaster which is unavoidable as well as unacceptable. There have been many efforts to mitigate climate change, but along with it adaptation strategies should be applicable. The population especially from the vulnerable community which is going to be affected at first by the climate change should adapt to the ways to fight against climate governance. Such as- Coastal communities living near the shore should take appropriate steps toward emergencies like tsunamis, cyclones and reduce too much dependence on marine resources. There is a need of sufficient finance to be allowed towards adaptation strategies by the government supplemented by private investment. Innovation mechanism integrating local needs and climate change requirements should be designed. Research and study on such efforts can be sponsored by public-private funds. Impediments towards adaptation, enclosure by private agencies over public assets, entrenchment where intervention by local agencies worsen the situation, exclusion where some stakeholders to marginalized and encroachment where adaptation actions interfere with areas rich in biodiversity and result in increase of

GHG, CFC etc. politics and power struggles make it difficult to make the benefits reach the needy communities. Social and political situations need to be kept in mind while designing strategies for adaptation.

The end period of later vedic literature can be trace back to 5<sup>th</sup> Century (or even earlier) which is contemporary to the famous Thucydides work '*Peloponnesian War*' in IR history. However, when we look into the history of ancient Indian texts it highlights the norms based moral duties of the subordinate to the supreme. Rig Vedic hymns vividly describing the *Dyava Prithvi* (i.e., to describe heaven and earth together) giving importance to the changing environment of their past. Sun or *Surya* was seen as the important god or deities in Vedic literature, particularly in the Rig Veda. During Vedic period people believe that *Surya* with divine efficacy solve the problem of human existence it was the norms of people to worship it. Today we see India coming with the leadership role in its International Solar Alliance (since 2015) which plays an important role in combating global climate change. Domestically the National Solar Mission seeks for the deployment of 20,000 MW of solar power by 2022. The mission documents identify three plans: Phase one (2010-2013), Phase 2 (2013-2017), and Phase 3(2017-2022), all ending with the financial years on 31 March. It set grid power targets of 1000-2000 MW, 4000-10,000 MW, and 20,000 MW for the last three phases. The high cost of grid-connected solar power raises serious question on the government energy budget and high cost opportunity. However, the PV in non-grid applications such as home-lighting etc is alternative to it, where even poor people should be willing to afford (Bidwai 2012: 134-35). Standalone solar-PV is eminently suitable for this.

The result of Paris Peace Conference conclusion was based on the importance of forest as a remedy to climate change disease. According to Forest Survey of India (FSI) more than 10 per cent of all land is defined as Forest (Ministry of Environment, Forest & Climate Change 2009). Forest has regulated climate, rain, groundwater, soil etc. As explain by the Indian philosophy forest (or *aranyaka*) can also trace back to the Vedic literatures (4500 BC) and forest studies such as *Aranyaakas* contain many descriptions on the use and management of forests are equally important to understand the importance of forest in ancient Indian philosophy (Chattopadhyay 2000). As forest is the home for flora and fauna. Poor people are dependent on the daily food and medicinal plants.

Environmental changes have impact on every sector especially the effects are severe on agriculture. According to research led by the University of Exter (UK), examined how climate change could effect to food insecurity when people lack sufficient quantity of affordable, notorious food. Agriculture could harm by more frequent and prolonged drought (*The Hindu* 2018). The ill effects were very prominent where the farmer suicides increased drastically during the El Nino year. The government budget of 2018 has the following provisions which will address the environmental concerns. Such as- Fire wood has been major concern for carbon emission. Thus, there will be an increase in coverage of scheme Ujjwala Yojana which will increase the coverage of LPG connections and reduction in fire wood for cooking thus reducing air pollution concerns. Operation green scheme should promote Farmer Producers Organization which will address the concerns of farmers in a way. Subsidizing crop breed or machines which will address the crop burning issues in the states like Delhi, Punjab and Haryana. Gobardhan scheme should promote composting and promote usage of bio fuels. Cleaning of River Ganga with 187 projects sanctioned for Namami Gange Programme which will address water pollution along Ganga banks.

According to World Bank report (2015), Ganga river basin is home for more than 600 million Indians, with 860,000 sq km spread across 11 states. Approximately 40 percent of country's GDP is generated from this region but the fertile region is also a home of the poorest section of Indian populations (*World Bank* 2015). Major regions behind the strong backing of traditional view are that they strongly rely on normative implications. Religion, caste culture, and its importance to various norms should help us to understand the phenomenon of the global issues like climate change with the local problems. The newspaper - *The New York Times* (2011) in an opinion page highlights that even religion enters public discourse primarily as a voice of certain moral issue. Taking a case of Ganga River, which is one the longest river of India with 2,510km in length, which flows east through the Gangatic Plain of northern India and Bangladesh. Today river Ganga should be an important issue to discuss in the domestic and international politics to understand climate change. The then ruling government Congress gave River Ganga the status of a 'National River' and set up the National Ganga River Basin Authority (NGRBA) on 20 February 2009, one month before the general election (Ministry of Environment and Forests 2009). Moreover, the election manifesto shows that the Indian National Congress has also declared the sacred Ganges as a "national river" (Lok Sabha Election Manifesto 2009). The development of later Vedic period emerge which extended to the western Gangetic plains, as discussed in the above paragraphs where Ganga river has been believe to the goddess or deities of Hinduism since ages. Importance of Ganga became so much important in

Indian politics that on March 30, 2017, the Uttarakhand High Court declared river Ganga and its tributary India's first living entities status just like New Zealand's Whanganui River is given living entity status (Trivedi, A. and Jagati, K. 2017). Apart from air pollution it is important to give equal importance to water pollution. Cleaning of Ganga should be seen as both 'rights-based' and 'needs-based'. The moral religious significance of Ganga River was also established at the origin itself which are seen as 'imagined community' by the international relations scholars. The Hindus should religiously worship the river because of their belief but the problem lies when it is exploited in the same name of religion by polluting and damaging the whole ecosystem. The traditional river has also been place to take bath, wash clothes, burn dead bodies and through its ashes to river, where approximately 3 billion liters of sewage is release polluting the river every day which also has implication on agriculture banks by adding harmful toxic pesticides. The sickness such as rashes boils and numbness in the limbs, lung cancer, and liver failure are witnessed by the use of Ganga River. The article title "pollution in Ganga claims more lives than bomb blast" shows that millions of people die every year by polluted water of Ganga which goes unnoticed (*The Hindu* 2011). Minister of Rural Development, Drinking Water and Sanitation Jairam Ramesh said that different pesticides have been found in the River Ganga basin states of Uttarakhand, Uttar Pradesh and Bihar (*The Hindu* 2012). The water of Uttar Pradesh contained endosulfan residues while Bihar water contained more aldrin group of pesticides. Moreover, "HCH, a by-product of agricultural insecticide lidane was also detected mostly in the mountainous stretch of Uttarakhand (*The Hindu* 2012).

The government has taken some initiative in concern to both poverty and environmental issues in case of River Ganga. The upper reaches of the River Ganga had more hydroelectric power projects that could support India approach to Climate mitigation and adaptation. As the river ecological flow was in danger endangering both the river and the life it supported particularly the poor. Some excerpt from the official letters shows the protest of environmentalist against the Hydropower Projects in the River Ganga. Small hydroelectric power is the most economically viable form of renewable technology with an average economic cost of Rs. 3.56/kWh, compare to wind project which is highly sensitive to the capacity utilization factor, and solar is the most expensive renewable resource (Ramesh 2015: 443). If government does not take strict policies towards cleaning of River Ganga, this will impact on severe impact on the locals which will also directly or indirectly effect on health budget in future.

In the long run the glacier which has been feeding the river Ganga has too been alarming in the recent studies. From the observation dating back to the year 1842 till now, glacier recession was going up rapidly. The increasing phenomenon has occurred from the global warming and anthropogenic activities in the Himalayas.

## 6. ERROR IN HIMALAYAN GLACIER STUDIES

India's National Action Plan on Climate Change has highlighted Himalayan glacier important concern towards adaptation. According to the World Glacier Monitoring Service (WGMS) glacier all over the world is melting and the Fourth Assessment Report (FAR) of IPCC concluded that large majority of Himalayan glacier are melting rapidly (2007). The article title 'Glacier Beating Retreat' written by Mridula Chettri highlights that glacier in the Himalayas receding faster than any parts of the world and if it continues it will disappear by the year 2035 (Down To Earth, 1999). The report of Working Group II in the IPCC FAR have also gone so far and predicted that the Himalayan glacier will altogether disappear by 2035. Moreover, the data given by the World Wild Fund, total area of glacier shrink from the present 500,000 to 100,000 km by the year 2035 (WWF 2005).

However, the above data presented by the IPCC report itself is not clear and erroneous data has been transmitted till now regarding the Himalayan glacier. The claim of the glacier mass as an area of 500,000 sq km does not come from WWF but from Russian scientist V. M. Kotlyakov's research paper namely 'Variations of Snow and Ice in the Past and at Present on a Global and Regional Scale' which was written in 1991 but published in 1996 (Kotlyakov 1996). As error was transmitted and was highlighted in the India's environmental magazine *Down to Earth*, published by the Centre for Science and Environment. Also this Centre for Science and Environment based in New Delhi has been influencing policy makers of all the time since its intervention towards per capita debate.

To identify the error, Kotlakov's article was written in 1996 that the extrapolar glaciations of the Earth will shrink rapidly from 500,000 to 100,000 km by the year 2350 (Kotlakov 1996: 66). However, the date was transposed from 2350 to 2035 as came out in almost all the reports of the glacier in the recent studies. Also the IPCC report arithmetical error of miscalculating the melting of the Pindari glacier (Uttar Pradesh) cannot be denied. Instead of dividing 2,840 metre from the year 1845 to 1966 by the 121 years, it divided it by 21 years showing much faster recession rate of 135 metres a year



than the correct figure of 23. The erroneous data transmitted from the IPCC's report from first draft to the final draft without the scrutiny of reviewers. It was only on 20 January 2010 WWF retracted the controversial paragraph in its report and IPCC itself withdrew the paragraph from the report.

## 7. OBSTRUCTIONIST TO CONSTRUCTIONIST

Former Environment Minister J. Ramesh was instructed by the then Prime Minister Manmohan Singh that the renegotiation process should be flexible in comparison to the rigid policy of India had towards the climate diplomacy. His bargain was that India was not responsible to the global warming but the maximum vulnerabilities lies in the Indian soil and the politics of hiding behind the per capita is not that effective to persuade in climate politics. This was the bargain in the domestic politics to come up with the outcome of leading State in the international climate politics. The outcome was to be less argumentative like before India was engaging to the more practical leadership role in the climate diplomacy.

Also the government main argument such as "emission rights" (per capita norm) is seen deeply problematic in nature. As nobody has a right to emit harmful gases or right to pollute environment. The right to development as given in the Universal Declaration on Human Rights (UDHR) of 1948 is inherent to all human being. Every human being can argue on the basic necessities of life like food, water, energy, shelter, health etc. Realizing the right to development means focusing on the 2 billion of the world population, there must be waste of tremendous human potentials (Bidwai 2012: 114). Emission rights outside the framework of equitable human development make no sense.

If per capita emission is the norm that India advocates globally than same norm applies to India domestically. India domestic inequalities in income, consumption and GHG emission are seen visibly. Approximately 55 billionaires have wealth which is equivalent to 14.3 per cent of the GDP of whole country. Moreover, India has shown no such commitment to reduce the domestic rich-poor gap. The only policy such as – NREGA (National Rural Employment Guarantee) with the modest transfer of funds created 45 million people per day to work at the daily wages of roughly \$2 to 2.50 (ibid. 120). This shows that India badly needs radical distribution and equitable development. Environmental sustainability with equity is a public good with universal benefit but emission rights well distributed can never indicates a public good.

As change in international climate diplomacy with the Copenhagen Accord, can be seen from three positive scenarios: aiming to globally reduce carbon emission by 2050; measurement, reporting and verification (MRV) of each State action; and the need for a legally binding global treaty. Environment protection has been the fundamental duties of every citizens of India. Article 51 A (g) of Indian Constitution dictates "to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures."

India ranks 177 out of 180 countries in Environmental Performance Index which is an immediate concern and the theme "ease of living" based budget 2018 is impossible to achieve without factoring the environmental component in it. Economic Survey of 2018 was depicted as pro-poor and pro farmer but failed to recognize the fact that farmers are the primary group in the country who are affected adversely due to climate change. As per the reports there is much decrease in agricultural produce of 7% in kharif and 7.6% in rabi due to change in climate patterns changing temperatures and onset of monsoon. The Indian government is not seen as pro-environment. Exclusively for environment protection a paltry sum of 150 crores was allocated which is insufficient. For combating pollution only places like Delhi, Punjab and Haryana were targeted and the rest of the cities which is battling pollution were completely ignored. Lancet Commission on Pollution and Health reports India rank number one in pollution related death with 2.51 million deaths in 2015, followed by China with 1.8 million. It is irony that a country which promotes International Solar Alliance and Paris Accord at global stage has completely diverted its national clean energy fund towards compensation of states for loss of GST and its water fund which was the primary fund for state pollution board is completely withdrawn.

The serious concern of stubble burning in and around the capital of Country, Delhi is that the common effect of pollution on farm handling. There is hardly any mention about tackling pollution in the present budget and no allocation of funds was made. Instead, the funds collected as water cess and coal cess were diverted to compensate new reform norms like GST. During the year 2017 there was major allocation to Namami Gange scheme but could barely be seen on 2018's fund allocation. There was a major shift away from protection of climate in global trends too when USA withdrawn its membership from Paris climate change convention and its policy of opening the trade of fossil fuels. To tackle with this indirect measures - India is aiming to use low cost handling measures for pollution and climate change by increasing solar

energy production, zero cost farming initiatives using traditional methods of cultivation, handling water pollution by deploying hydroponics (floating treatment wetlands which require less or no amount of fund allocation to use these methods). Increased targeted population of Pradhan Mantri Ujjwala Yojana (PMUY) from 5 crores to 8 crores is a step common to health and air pollution. India should realize that protecting environment is not the part which has to be allocated separately but every development should be made considering environment friendly measures. The focus should not be on curing but should be on mitigation and prevention. It sends the message that it's not the duty of government alone but of every individual and communities, industries are expected to follow the guidelines for sustainable development. Climate change is a global phenomenon and no population is unaffected by its ill effects. Recently various global studies have thrown light on its effects on indigenous population which has reduced the state of human beings to animals merely fighting for their sustenance.

Various effects are seen on indigenous population. Comparatively to industrial economy, indigenous tribes' socio cultural activities are closely linked with nature. Various tribes across Kenya are seen to be fighting amongst themselves where from decades they have survived and existed harmoniously disruption of kinship among them major cultural struggle is. Various tribes co-exists with nature are forced to undergo climate change induced migration in search of basic necessities, this is much more prevalent in oceanic areas like Polynesia because of rising sea levels. The most extreme effects are that an entire tribe species becoming extinct, while previously known Jarawa population in Andaman is now mere 400 individuals. Similar is case with arctic tribes like in units who are battling glacier melting and its affects. While some tribes like Naga, Baiga have shifting cultivation as their way of life because of the ill effects on climate the government is forced to ban it. However, the bright side of the issue is that there are some tribal's especially in the African deserts that are known to survive even in extreme situations, hence just in case of extreme climate change impact on our earth they will be the last standing men. Hence there is a need to work together as a team in order to battle the climate change and not in silos as separate species.

## 8. LINKING POVERTY TO ECOLOGY DEBATE

India is vulnerable with 600 million people living without electricity, 270 million people living below poverty line; where India comes 117 in global hunger index, and 1.77 million are homeless with 30.6 percent are migrants. The vice-president of Asian Development Bank made a statement about the role of environmental factors in poverty- "We have looked at educational poverty and health poverty, we measure poverty as consumption poverty and the NCAER does income poverty studies, but ecological poverty or notion of poverty can arise from ecological factors." Ecological poverty is extremely important and must be given attention. There is a need of very systematic effort to design interventions that will ensure that ecological factors do not exacerbate poverty levels.

There is a concern that India is not solely responsible for the global warming, so the negotiator was always backing before 2009 Copenhagen Climate Conference to take proactive against it. As India's domestic actions has been dictated by international negotiating positions. Thus, why India looked into the domestic agenda after the Copenhagen summit 2009 was there was domestic constrain regarding the vulnerability of India itself being affected by climate change. In terms of environment related to India, the monsoon has been critical towards Indian agriculture and India is dependent on agriculture. Even less than 18 percent of India's GDP is dependent on agriculture, but the variation of GDP is driven by the variation of the monsoon. Poverty is linked with environment and public health issues. As public health dimensions of environmental issues have been grossly neglected in India. There is close connection between conventional environmental and public health issues. Moreover, poverty is linked with environment and its natural resources. The vast populations living in the Indian coastal areas, which are considered most vulnerable to rising, mean sea levels. As many a time sea level rise vulnerable has been seen to countries like Maldives and Bangladesh, but India is of no exception. The vulnerable lies also in the Himalayan region of India along with the neighboring countries like Nepal and Bhutan where the Himalayan glacier is a major concern which has to do with water availability to the people living in that area. Therefore, it is the domestic threats which need to be secure first.

## 9. CONCLUSION

India needs to consider domestic problem as primary target to overcome climate change which is the basic norms for every big states to sustain. The above government schemes to tackle the challenges also cannot be ignored which has been seen as major domestic constraint to coming with nature friendly policies. However, the above mention data clearly indicates that India is being pro only towards elite and not towards the poor in its climate diplomacy. Poor people are

suffering from the climatic hazard as compared to the upper class, moreover latter can adapt to climate change with the new technology as available in the market. As poor do not have sufficient money to buy air condition to combat such heat and government lack in providing such necessities. They are only concern towards day to day food, cloth and shelter for living. On the other hand these poor people are also known for cheap and high skilled labor but the domestic political system is not at all favorable. Also high religious norms are ruining India which lacks in education, followed by health and nothing contributes to India in its developmental transition process.

The paper has four major findings. First, the debate of colonial narrative and per capita equality will lead India nowhere but only to serve lip service policies. Secondly, poverty is the driving factor where India is moving beyond the claim of per-capita emission, towards every challenge for poverty reduction. Thirdly, keeping energy demand into concern focusing on renewable resources is desirable. Lastly, climate change does not modify how poverty policies would be designed but it always creates need and urgency. Most importantly the poorest are generally the most exposed to climate hazard and least equipped to adapt to climate change because of its economic conditions. Extreme poverty will therefore be affected by climate change policies. Even if poverty is eradicated the impact of climate change on poverty will not disappear. Therefore, government needs to consider such policies with strict measure targeting pro poor towards its climate policy/diplomacy.

### REFERENCES

- [1] Biswas, S. (2012). Who are the poor in India? BBC News. URL: <http://www.bbc.com/news/world-asia-india-17455646>
- [2] Bidwai, P. (2012). *The Politics of Climate Change and the Global Crisis: Mortgaging Our Future*, Noida: Orient BlackSwan.
- [3] Chandra, B., Mridula Mukherjee and Aditya Mukherjee. (2008). *India Since Independence*, Noida: Penguin Books.
- [4] Chettri, M. (1999), "Glacier Beating Retreat," Down To Earth, 30 April 1999.
- [5] Dubash, N., and Rajamani, L. (2015). "Multilateral Diplomacy on Climate Change", Chapter 48 in *The Oxford Handbook of Indian Foreign Policy*, edited by David M. Malone, C. Raja Mohan, and Srinath Raghavan, Oxford University Press: United Kingdom.
- [6] *Hindustan Times*. (2017). India's carbon emission jumped 1,041% since 1971, says study. By CHATTERJEE, B.. URL: <https://www.hindustantimes.com/mumbai-news/carbon-dioxide-emission-from-fuel-combustion-in-india-increased-by-1041-from-1971-to-2015-study/story-ScRbLtCJ3X6r7fIHfZKqWl.html>
- [7] India Energy Outlook. (2015). URL: [https://www.iea.org/publications/freepublications/publication/IndiaEnergyOutlook\\_WEO2015.pdf](https://www.iea.org/publications/freepublications/publication/IndiaEnergyOutlook_WEO2015.pdf)
- [8] International Energy Agency. (2017). Global Energy & CO2 Status Report 2017. URL: <http://www.iea.org/publications/freepublications/publication/GECO2017.pdf>
- [9] Kotlyakov, V. M. (1996), "Variations of Snow and Ice in the Past and at Present on a Global and Regional Scale," Technical documents in hydrology, Paris, Vol. 1: 1996. URL: <http://unesdoc.unesco.org/images/0010/001065/106523e.pdf>
- [10] Kumar, R. (2008). India as a Foreign Policy Actor – Normative Redux, CEPS Working Document No. 285/February 2008. Centre for European Policy Studies.
- [11] Lok Sabha Election 2009: *Manifesto of the Indian National Congress*. URL: <http://inc.in/documents/election-doc/manifesto09-eng.pdf>
- [12] *LiveMint* (2016). Poverty and inequality after reform. 26 July 2016. URL: <https://www.livemint.com/Opinion/Mr2DS2Qv4ika8zEuScxN1L/Poverty-and-inequality-after-reforms.html>
- [13] Ministry of Rural Development (2018), Information sought under Right to Information Act, 2005, Application Reg no. MOENF/R?2018/50363, 07 April 2018, revived by Ministry of Environment, Forest & Climate Change and transferred to Ministry of Rural Development wide letter 13015/25/2018 B VII NAFB.

- [14] Ministry of Rural Development (2016), Meeting lighting requirements of houses constructed under Pradhan Mantri Awaas Yojana – Gramin (PMAY – G) – Adoption of innovative technology “Surya Jyoti” a micro solar dome developed by Ministry of Science & Technology, 23 November 2016.
- [15] Ministry of Rural Development (2017), Installation of Solar Cooker in PMAY (G) houses, 20 June 2017.
- [16] Ministry of Environment, Forest & Climate Change (2009). Forest Survey of India. URL: [http://fsi.nic.in/details.php?pgID=sb\\_61](http://fsi.nic.in/details.php?pgID=sb_61)
- [17] Ministry of Water Resources, River Development & Ganga Rejuvenation (2009). National Ganga River Basin Authority (NGRBA) under National Mission for Clean Ganga. Government of India (Gazette notification of the Government of India (Extraordinary) No. 328 dated Feb. 20, 2009 New Delhi). Available at: <http://nmcg.nic.in/ngrbaread.aspx>
- [18] Ministry of Environment and Forests (MEF) (2009). National River Conservation Directorate, *Status Paper on River Ganga: State of Environment and Water Quality*, August, (2009, Government of India). [http://www.moef.nic.in/sites/default/files/Status%20Paper%20-Ganga\\_2.pdf](http://www.moef.nic.in/sites/default/files/Status%20Paper%20-Ganga_2.pdf)
- [19] Ramesh, J. (2015). *Green Signals: Ecology, Growth, and Democracy in India*, Oxford University Press: New Delhi.
- [20] Trivedi, A. and Jagati, K. (2017). Uttarakhand HC declares Ganga, Yamuna living entities, gives them legal rights, *Hindustan Times*, [online] Mar 22, 2017. URL: <http://www.hindustantimes.com/india-news/uttarakhand-hc-says-ganga-is-india-s-first-living-entity-grants-it-rights-equal-to-humans/story-VoI6DOG71fyMDihg5BuGCL.html>
- [21] *The Hindu* (2011). Pollution in Ganga claims more lives than bomb blasts: Advani, 14 August 2011. URL: <http://www.thehindu.com/news/national/pollution-in-ganga-claims-more-lives-than-bomb-blasts-advani/article2356324.ece>
- [22] *The Hindu* (2012). Plan to save the Ganga going down the drain by Sandeep Joshi. URL: <http://www.thehindu.com/news/national/plan-to-save-the-ganga-going-down-the-drain/article3772571.ece>
- [23] *The Hindu* (2016). Rangarajan defends poverty estimates. 22 October 2016. URL: <http://www.thehindu.com/business/Economy/Rangarajan-defends-poverty-estimates/article11257188.ece>
- [24] *The Hindu* (2018). GDP growth seen slowing to 4-year low of 6% in 2017-18. 5 Jan. 2018. URL: <http://www.thehindu.com/business/Economy/gdp-growth-seen-slowing-to-4-year-low-of-65-in-2017-18/article22378942.ece>
- [25] *The Economic Times* (2017). India’s energy consumptions to grow faster than major economies, 27 January 2017. URL: <https://economictimes.indiatimes.com/industry/energy/oil-gas/indias-energy-consumption-to-grow-faster-than-major-economies/articleshow/56800587.cms>
- [26] World Bank (2015). The National Ganga River Basin Project <http://www.worldbank.org/en/news/feature/2015/03/23/india-the-national-ganga-river-basin-project>
- [27] World Bank (2018). Meet the Human faces of Climate Migration. 19 March 2018. URL: [http://www.worldbank.org/en/news/feature/2018/03/19/meet-the-human-faces-of-climate-migration?cid=ECR\\_E\\_NewsletterWeekly\\_EN\\_EXT&deliveryName=DM2234](http://www.worldbank.org/en/news/feature/2018/03/19/meet-the-human-faces-of-climate-migration?cid=ECR_E_NewsletterWeekly_EN_EXT&deliveryName=DM2234)
- [28] Wieman, N. Henry (1936). “Authority and the Normative Approach,” *The Journal of Religion*, 1936, 16 (2): 117-202.
- [29] Yurdusev, A. Nuri. (2003). *International Relations and the Philosophy of History: A Civilizational Approach*, Palgrave Macmillan: New York.