

ENVIRONMENTAL CHANGE AND MIGRATION: POLICY ANALYSIS IN INDIA

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Abstract

People have been forced to leave from their traditional habitat, temporarily or permanently because of a marked environmental disruption (natural disaster, expropriation and deterioration) that jeopardized their existence and/or seriously affected the quality of their livelihood by which they unable to adopt on their traditional habitats is an old phenomena in India. This country is home to 800 million such poor people, the majority of these people live on ecological fragile land and due to lack of institutional and financial capacity they unable to protect against natural as well as market based climate change. Among them various people belong to "Adibasi" (Tribal) communities across the country. They all have force to tolerate day-to-day burdens such as water shortage, food insecurity, disease, sea level rise and other environmental problems. As a result of people are being displaced internally by temporary or permanently with no hope of a foreseeable return to original inhabitant cause by expropriation such as dam or irrigation projects, mining etc. According to the Lok Sabha reports LARRDIS, 2013 around 50 million people have been displaced to the name of development projects over 50 years in India. It is look at the policy interventions by national, regional, and international actors by targeting to adaptation and disaster risk reduction. At present humanitarian issues on climate change is very concern in worldwide. It is broadly includes the mean to right, needs, demographic and technical change. In this paper, an endeavour has been made to examine theoretical framework pertaining to the nexus between environmental disruption and population displacement, and contemporary legal challenges on the issues. The aim is not only offer to expedient answers to how policy on must to be but to suggest policy alternatives in Indian perspective.

Keywords: People, Environmental Disruption, Human Security, Government Policy etc.

“The earth has enough resources to meet people’s needs, but will never have enough to satisfy people’s greed. Thus we must not only promote sustainable production processes, but equally, sustainable lifestyles across the globe”- M.K. Gandhi

Introduction

Since few decades many studies have argued that environmental disruption plays a vital role in affecting internal population movement or displaced people. Either events may natural or triggered by people i.e. unnatural highly burdened with high-level risk or jeopardized to the vulnerable section mostly wormed developing countries in world wide. The displacement and population movement over environmental change is of course not a new phenomenon because it is much have been threaten to range of socio-political and impact of economic environment since 21st century in many part of the countries (Suhrke, 1991; Myers 1993,1995; Swain, 1996, Gaim, 1997; Brunch, 2003; Reed , Stojanov, 2007, Saur, 2013; Khatun, 2014). Author Jacobson (1988) notes “environmental refugees have become the single largest class of displaced persons in the world”. Norman Myers (1995) has estimated approximately 30 million people would be displaced in china and India and 1 million in island by 2050. These countries are still facing on starvation crises due to reduce the agricultural land. He predicted in 2005 that approximately 200 million people could potentially displace due to adverse impact of climate change. It is estimated that, 150 million of people will be forced to displace by the greatest adverse effect of climate change such as agricultural disruption due to coastal erosion, as a result of heavy coastal flooding and sea level rise (IPCC, 1990). As for Asia continents IPCC estimated more than 1 billion people could be adversely affected by projected decease in fresh water level in Central South-East, Asia countries by 2050. The recent studies have shown particularly in China and India, there were approximately 50 million people have been displaced by public developmental works projects. Still one millions of people who had not been resettled (Lonergan, 1998; Reed, Stojanov and Brown, 2007; Oxfam, Kolmannskog, 2009; Burson, 2010).

A many studies have well founded both national and internationally that India; the sub continents eastern part of Asia would be the most adversely effected countries to climate change. It is might be a leads of two types of population movement i.e. displaced people or migrants of the country. First, the migration of India increases due to unfavorable impact of climate change such as low food produc-tivity as result of rise in sea level, drought, water scarcity, desertification, and melting glaciers. Second, increases flow of migrant's people from neighboring counties due accelerated effects of climate change (Panda, 2010). India is a home of 800 million vulnerable people. The majority of these people live on ecological fragile land and due to lack of institutional and financial capacity they unable to protect against natural as well as market based climate change. Among them various people belong to "Adibasi" (Tribal) communities across the country. They all have force to tolerate day-to-day burdens such as water shortage, food insecurity, disease, sea level rise and other environmental problems (Macnaughton, 2009). There is powerful evidence of such migration of population temporarily have become a regular source of livelihood strategies merely in rural areas in many part of the country. The table no.1 shows the clear evident drought triggered and sea-level rise induced migration of 2008 in India.

Table 1: Drought/ Sea-Level Rise Migrants in 21st Century, India

Vulnerable Regions	In millions
West Bengal	~10
Costal Maharashtra	~10-12
Costal Tamilnadu	~10
Costal A.P	~6
Costal Odisha	~4
Gujarat	~5.5
Northern Karnataka	~1.3

Western Rajasthan	~1.4		
Interior Maharashtra	~1		
Madhya Pradaseh	~1.2		
Northern A.P	~1		
Southern Bihar	~1		
Migrants (Assuming Phased Movement)			
Year	2100(1m)	2100(3m)	(2100 (5m)
2010	23,723	33212	42,701
2015	36,550	51591	66,332
2020	149,675	209,645	269,415
2025	316,617	443264	569911
2030	589,419	825,186	1,060,954
2035	1,209,244	1,692,942	2,176,640
2040	2,221,491	3,110,088	3,998,684
2045	3,607,278	5,050,189	6,493,100
2050	4,365,833	6,112,166	7,858,499
2055	5,259,326	7,363,057	9,466,787
2060	6,313,208	8,838,492	11,363,775
2065	7,557,351	10,580,292	13,603,232
2070	9,026,801	12,637,521	16,248,241
2075	10,762,637	15,067,691	19,372,746
2080	12,812,968	17,938,156	23,063,343
2085	15,234,067	21,327,694	27,421,321
2090	18,091,665	25,328,331	32,564,997
2095	21,462,425	30,047,395	38,632,365
2100	24,027,847	33,638,986	43,250,124

Source: Climate Greenpeace (2008), Climate Migrants in South-Asia Estimation Solution

It was predicted; approximately, 80 million people who living in coastal region may be forced to displace people due to Sea-Level Rise (SLR) particularly in Inland. Particularly in the metro city of India like Mumbai and Kolkata could be depopulated, in case of a rise 3 to 5 metre sea level rise by 2010.

Environmental Change and Migration: Origin and Concept

The terms 'ecological refugees' was first appeared and popularized by author Lester Brown of the World Watch Institute in Washington, D.C. in 1970s. Besides this other terms also been developed to describe this force migration due to environmental change like 'environmental migration, climate refugees', environmentally displaced persons, Later this term subject to described as 'environmental refugees' by El-Hinnawi's in 1985 and later Jacobson report (1988) popularized the term in the field of refugees studies in worldwide . The most popular and standard definition of 'Environmental Refugees' has been comes El-Hinnawi's United Nations Environmental Programme Reports;

"Environmental refugees are defined as those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life. By 'environmental disruption' in this definition are meant any physical, chemical and/or biological changes in the ecosystem (or the resource base) that render it, temporarily or permanently, unsuitable to support human life"

Author El-Hinnawi's (1985) notified three characteristic of such "Environmental refugee" for example:

- Those people who temporarily leaved due to disaster such as natural and anthropogenic events
- People who permanently relocated due to drastic/extreme change of environment such as development projects like irrigation, construction of dams or lakes etc.;
- People who are migrates from their traditional habitats due to gradual deterioration of changing environmental conditions (temporary or permanently)

Author Bate (2002) above the description seeks to conceptualized that, the streaming of migration resulting from these environmental disruptions can be characterized by three

categories event such as; disaster, expropriation, and deterioration (S. Lonergan, 1998 also see - Bates 2002; Naik and Westar2009).

Table 2: Definitions and Taxonomies of Displaced Persons by Different Analysts

Taxonomy	Thrust of definition	Author
Displaced People	The broad terms used for refugees and IDP fleeing their traditional place of residence due to persecution, armed conflict or violence	Crisp (2000)
Refugee	People fleeing due to fear and persecutions from home country, emphasis on crossing an international boundary and consequently protection not provided by origin country	UNHCR (2006) McGregor (1993)
Environmental Refugees Note: Critics(Saunders,2000; Kibreab,1994) questions preparation of overlapping and interrelated	Initial applicant of the term which he popularized in the 1070's and gained prominence at a 1984 IIED workshop. "People fleeing from their traditional habitat because of a marked environmental disruption that jeopardizing their existence and/or seriously affecting the quality of their life" invention by policy maker in the North to restrict asylum laws and procedures to depoliticized the cause and the cause of displacement; originated by UNDP (i.e.-El-Hinnawi work) to place the burden in the UN agency located in the South with primary services to Africa, not the North Victims of environmental catastrophe resulting from climate change deforestation and desertification	Brown (1970s); IIED (1984)El-Hinnawi's(1985), Jacobson(1988) Kibreab(1997:21) Myers (1993abc)
Environmental Migrants	The voluntary migrants leaving because of an environmental problem used to define those environmentally motivated and pre-empting the worst; those environmentally refugees fleeing the worst	King (2006) Borgadi (2007)
Environmental refugees versus migrants	Abundant typologies of each with little agreement on what each category really means	Black (2001)

Environmentally displaced Persons	People forced the adverse environmental conditions to move out	King (2006)
Event-induced migrants	Disaster-induced and developmental-induced migrants	Crisp (2000)
Internally Displaced Persons (IDPs)	Person forced to flee or leave their homes or habitual residence but who have not crossed an internationally recognised boundary of the sates	OHCHR (1998)

Sources: Prof. John O. Oucho, 2007

Nexus of Environmental Change and Migration

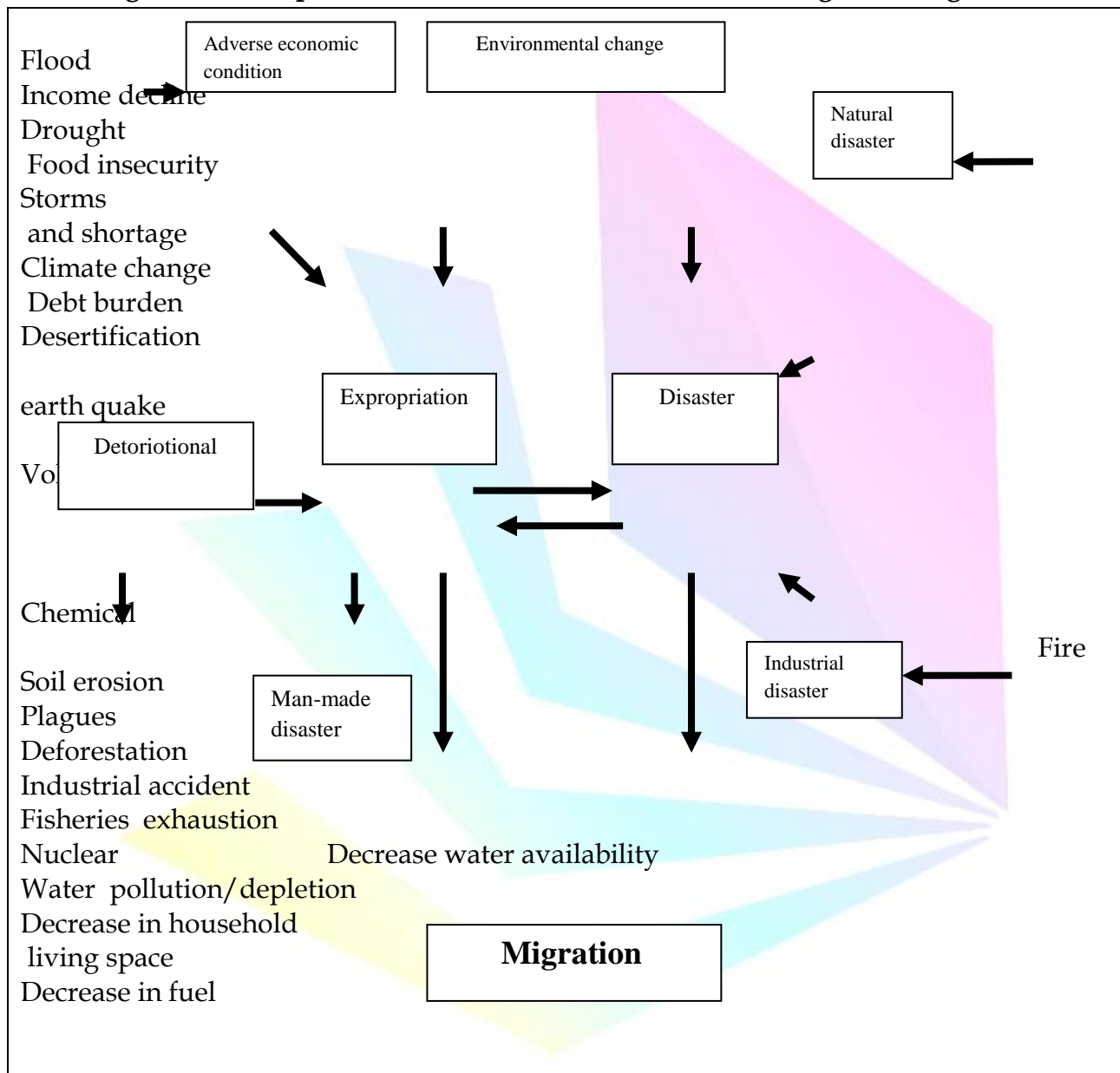
The nexus of migration and environmental linked to both drastic events and gradual change gradual change that forced to relocated effected people is an old phenomenon in global arena. The relationship between climate risks related to vulnerability is complex one. It is extremely varied with very complex manifestation and different components of equal composite to social, cultural, demographic, economic and political processes which is always exists at local, regional, national and International level. The existence literatures on “environmental refugees” are categorized in terms of two groups such as ‘Proponents’ and ‘Critics’ conceptual. The present study has found out some theoretical approaches on environmental refugees above the literatures. An identified a general debates on “environmental refugees between two schools of thought are first described by Suhrke in 1994. He described as ‘Maximalists¹’ and ‘Minimalists²’. The formers are described the link between environmental change and migrations are casual and direct. They advocate population movement always combined with socio-economic, environmental degradation and political conditions on by not itself as a cause of population movement due to cause by environmental change only. There are several coping strategies have taken by the most of rural people to deal with vicious poverty. While other thought to be contradictory and complicated. The proponents groups argues

¹ Include authors “El-Hinnawi (1985), Jacobson (1988), Myer (1993), Black,(2001) and Bates (2002)

² authors such as Bilborrow (1992), McGregor (1994) and Suhrke in (1993)

that, environmental problems has always deals with population movement and displacement of population and more of them displacement is on the same pathway.

Figure 1: Conceptual Framework of Environmental Change and Migration



Sources: Modified based on the Review of literature by author, 2015

The above framework shows that streaming of migration is distinguished in to two major categories i.e. Predisposing/pervasive (Deterioration) and Precipitating/intensive (Expropriation and Disaster) condition. The deterioration condition refers to leads highly

environmental degradation and resources reduction. These factors are basically relating to persistent with high frequency, long duration and low energy. That adverse effect of living condition that people force to migrants due to seriously jeopardize their existence. For example; encourage industrializations to reduce poverty and increase job opportunity can promote overexploitation of natural resources that related on desertification, water depletion, pollution, and deforestation etc. As a result people unintentionally adversely effected in such a condition and leave their traditional home to search land, water, air, fodder and fuel etc.

The migration due to environmental change by precipitating/ intensive i.e. related to expropriation and disaster events can displace affected people effectively from their habitats. Basically these events are all-encompassing with low frequency, short duration and high energy. The manmade disaster like building a dam related to irrigation facilities/ or industrialization that increase productivity and reduced poverty of the rural farmers in tribal region of India. But it can promote overexploitation or directly destruction of natural resources. Because it always emphasize to encourage to destructive effect on habitats of species, that leads to effected people becomes more vulnerable forced to displaced people from their traditional home and in search of their livelihood existence temporarily and permanently. However, in this case of mandatory displacement the decision by people that either they migrate to other location or not is solely depends on will depend on government of the country. The cause of displacement by infrastructure construction related to developmental project particularly buildings of dam or reservoirs have found massive in Gujarat state of India. The building of the Big Sardar Sarovar Dam has displaced many tribal people away from their traditional home land (Laurie,1997) In case of adverse impact of livelihood of people by intensity and frequency related to natural hazard such as cyclone , drought , floods and earth quake events. For example, one of the most severe weather related risk from climate change is increased the intensity, frequency and also geographical coverage in case of drought. In this case migration of people is already response to condition of climate change. It was evident that every year

more than 3,00,000 laborers are migrate from Drought-prone Balangir district of Western Odisha (Panda, 2010).

Mainstreaming Adaptation in India

Environmental change is one of the greater challenges in the warming world today. India is already experiencing environmental disruption such as disaster like floods, sea level rise, and drought and severs ground water scarcity etc. with millions of people becomes internally migrants over a past decade in many part of the country. It has always been deal with an adaptation strategy for people to cope with the wide range of the climate changes. The climate-induced displace people are often face different socio-economic problems after leave from their traditional habitats. It is very urgent need to understand the existing policy and institutional framework for protecting these vulnerable people in India should be widely recognized in present today.

The role of institutional mechanism is vital in terms to checking and protecting to who are being found as environmental refugees. The institutional mechanism is define as the way the state and its various organizations negotiate and mediate with people, NGOs , and civil society, through implementation of laws, policies, regulation and finance. Basically, it implies the primary responsible is to welfare development and empowerment of the people. Infect, government is responsible to implement various policies/programmes in an accountable and transparent manner for development of the people. Of course, non-adaptive action plan is not an option plan to protect the livelihood option of the displaced people in the country. The institutional mechanism needs to wide range livelihood option policies for these worst people. It always deals measure to enhance livelihoods; social protection scheme and provision of insurance scheme etc. Since few decades the governments have implemented several project and undertaken the number of scientific and technical assessments aimed at adaptation to environmental threat. International Migration Organization (IMO, 2009) define *“More efforts are needed to identify, test and implement new programmes, policies, frameworks to manage future movements*

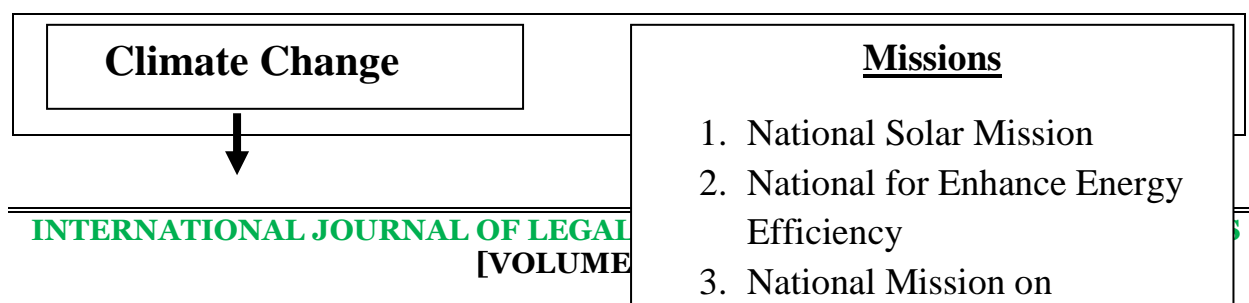
of people linked to environmental and climate change. The capacities of governments to implement existing ones need to be enhanced. Migration can be among several adaptation strategies as exemplified in several National Adaptation Programmes of Action (NAPAs). Countries of destination lack coherent policies to address potential future flows. Measures specifically targeting migration in relation to the environment are ad hoc at best"

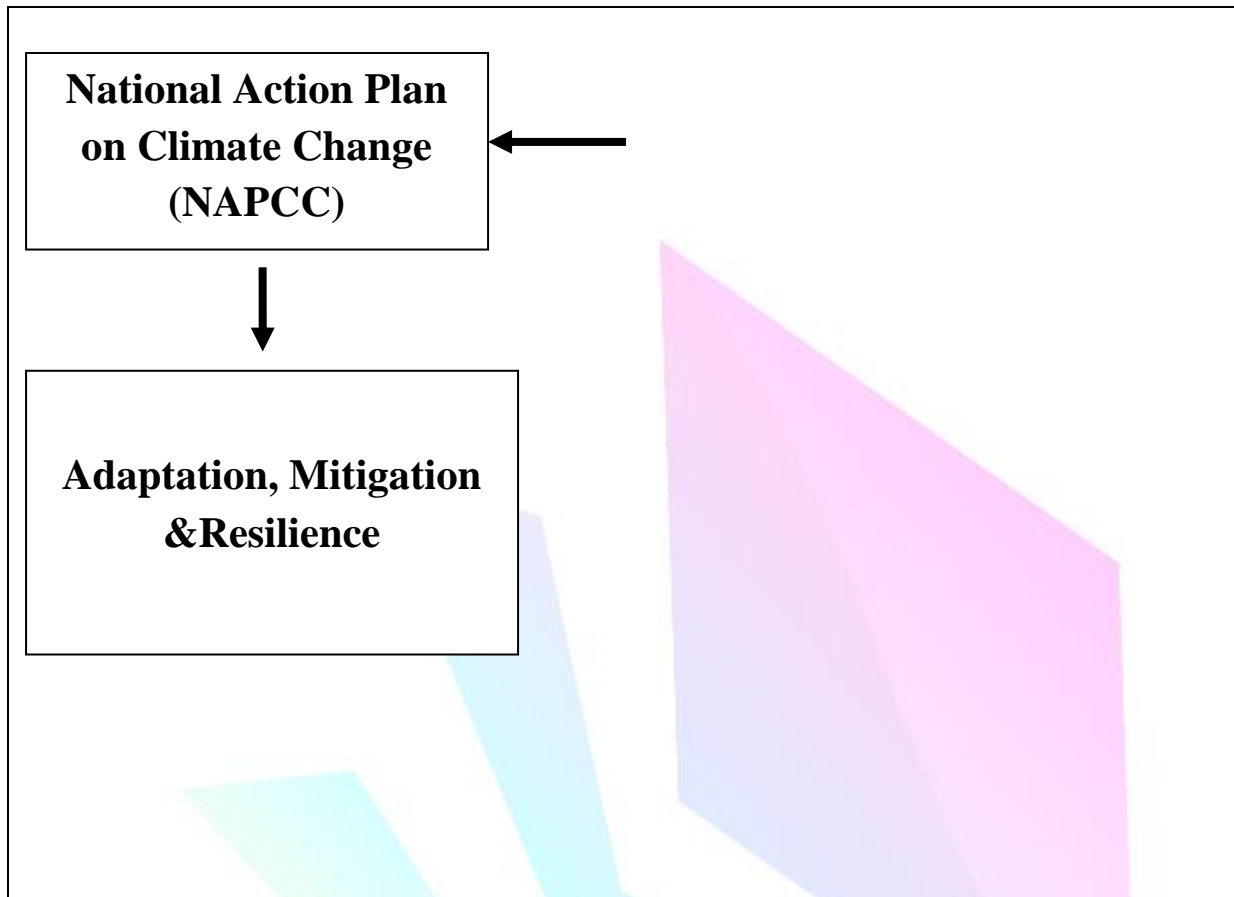
The National Action Plan on Climate Change (NAPCC) in India is based on large resources endowments, in to developmental path of the county. The general aim is to intervening priority of socio-economic development and poverty eradication and also concern on environmental and ecological balance. It is recognizing that climate change is one of the global challenges for all country. Recently, India has actively participate and involved particularly in multilateral negotiations in the United Nation Framework on Climate Change (UNFCCC) in to the looking manner of very positive and constructive. The main aim is to build a very effective, cooperative and equitable global approach. It is based on the general principle but distinguished respective responsibility and capacities that preserved by the UN Framework Convention on Climate Change (UNFCCC).

The Way Forward: Eight National Missions

The Prime Minister's Council has launched on National Action Plan on Climate Change (NAPCC) to dealing with the climate change challenges in 2008. This plan is based on the advance and use of the new technology to protect from climate change. It would be implementation through appropriate institutional mechanisms by more affective delivery to each and every objective of the mission's through includes of public private partnership and civil society action. This mission will be more focused to build up awareness to understanding of climate change risk, adaptation, mitigation, and also efficiency of energy, and conservation of natural resources. There is given appropriate framework to clear understanding on adaptation to climate change on graph no.1

Graph 1: Framework of Climate Change Adaptation Policy in India





Source- Author 2016

Table 3: Primary Objective of Eight National Missions on Climate Change

Missions	Main Objectives
National Solar Mission	Aim is to set up India as a global leader in buildup solar energy, it is creating policy that enable to achieved more affordable and solar energy at long term storage to use of convenient solar power system
National Mission for Enhance Energy Efficiency	This mission aims to carrying out of energy efficiency through strengthen of market by regulatory and conductive policy regime
National Mission on Sustainable Habitats	Aims to promote awareness of climate change adaptation, mitigation resource conservation and energy efficiency,

	management of solid waste and public transport
National Water Missions	This mission aims is to assure conservation of water resource and management, minimize wastage and equitable water distribution both across and within the state
National Mission for Sustaining the Himalayan Ecosystem	This mission aims to implements of time bound action programme to continuous provision for assess the health status of the ecosystem and enable to sustains ecological resilience's in Himalayan region
National Mission for "Green India"	Aims to protecting, restoring, and enhancing the degrading forest cover and recognized for take action to mitigation and adaptation of climate change
National Mission on Strategic Knowledge of Climate Change	The mission seeks to establish networking system that would provide information to take national action for create capacity building and effectively responding to the aims of ecologically sustainable development
National Mission for Sustainable Agriculture	The main aims is to focuses on Integrated/composite measure of soil, water and moisture conservations , macro and micro nutrients, use of judicious fertilizer and use of rain fed technology

Source: National Action Plan on Climate Change, Government of India, 2008

Other Relevant Policies on Climate Change

The climate changes in India expected as result of weather related climate change factor, then, on basis it is reflect that climate change may contribute to increased numbers of new migrants. Recently the government of India sets of adaptations policies such as:

- (i) Land Development, Drought Proofing , Irrigation and Control Policies
- (ii) Disaster Management Policies
- (iii) Poverty Alleviations, Livelihood, Food Security, Nutritional Policies
- (iv) Costal Marine And Ocean Management

- (v) Health Improvement And Disease Control
- (vi) Forestry And Bio-Diversity Management
- (vii) Water Resources
- (viii) Migration Policies

MGNREGA Programme

The government of India has implemented the Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA enacted, 2005). Basic aims is to enhance the security of people livelihood in rural villages by hundred days assurance of wage –employment in an every accounting year to a rural household (adult voluntary member of the household those who to do unskilled manual works). This programme (NREGA) is earlier known as National Rural Employment Guarantee Act. The main aims of the MGNREGA, Act is to promote employment guaranteed to rural households. Under the guideline of the act the environmental concern and adaptation to changing climate will be built at the level of sustainability. The kind of activities permitted under the Act reflects that while there are some activities that contribute to reduction in emissions and off-set the impact through plantation, a forestation, horticulture, land-development and de-siltation of traditional tanks, there are others which possibly contribute to emissions through their use of cement (roads, wells, leach-pits, renovation of ponds etc).

Box 1 : Developmental Programme(MGNREGA) and Climate Change

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is one of the biggest initiatives of right-based social protection act in the world. It was estimated expenditure was Rs. 40,000 Crore (US \$8.8 billion) by national budget for the financial year 2010-2011. The primary objective of the programme was to provision of employment. Despite in the perspective of potential ecological restoration and reductions of climate vulnerability. The MGNREGA has been enough to criticism for the insufficient focused attention to provide opportunity generated of sustainability of

the employment. According to the target-based approach, the act more emphasizes to engage only works like road building. But recently, more activities have been includes such as tree plantation and drought proofing etc. It was accounted around 8 percent of the funding in current budget. Now the National Forest Commission has recognized to a considerable raise the allocation of expenditure particularly on watershed and forestry sectors. As a result forestry could be support to triggered real economic growth of the country. It was estimated, 20 percent of funds to only Rural Development Programme (Matta, 2009). A study Tiwari (2010), by using of various indicators to analyses of implementation before and after the activities of environmental services such as using water for irrigation and upgrading of soil quality found that agricultural disruption has been increases due to uncertain climate factors such as uncertain rainfall, scarcity of water, and very poor soil fertility etc. The potential activities are undertaken by MGNREGA to enhance and provide batter environmental service.

Source: Darshini Ravindranth et.al, 2014

Current Adaptation Funding on Climate change

According to the Ministry of Environment and Forest, India, 2015 has taken initiative to budget provision of Rs. 350 Crore, under the National Adaptation Fund on Climate Change National (NAFCC) for the financial year of 2015-16. It was estimated that requirement of the financial year 2017-18 is Rs.181.5 crore. The main aim of the provision of funds is to supports from State and Union Territories for meeting the cost of adaptation and mitigation from the adverse effect of changing climate. Recently, National Bank for Agriculture and Rural Development (NABARD) has been appointed as National Implementing Entity (NIE) to take responsibility for implementation of various adaptation schemes under the National Action Framework for Climate Change (NAFCC) in 2008.

Conclusion

India has been identified as one of the most vulnerable country in the perspective of climate change. Since many decades the county has been experienced on extreme and frequent natural event such as cyclone, floods and drought etc. Those events may change resource distribution and quality of natural resources; as a result livelihood of the people jeopardized by the adverse effect. The economy of the country mostly depends on climate sensitive sectors such as agriculture, water and forestry etc. and on its vast natural resource base. The country signed with United National Framework Convention on Climate Change (UNFCCC) in 1992. Predominantly, UNFCCC and the Kyoto protocol addressed climate change, adaptation, mitigation, and policy measures to reduce the greenhouse gases emissions. Under UNFCCC the Least Develop Countries are also address to National Adaptation Programme on Action Plan (NAPAs) and Nairobi Work Programme a five year programme (2005-2010). This was the first step of Least Develop Countries towards enhancing the understanding of the adaption policy. The Bali Action Plan decided at the United Nation Framework convention on Climate Change (UNFCCC) in Conference of Parties (COP), Bali, 2009. The conference provides a roadmap towards a new institutional for climate change agreement as a successor to the Kyoto Protocol. The climate risk and management are identified as fundamental issues in Bali Action Plan. There is emphasizes to the importance of “construction on synergies among activities and procedures, as a means to support climate change adaptation in a rational and integrated manner”. The government of India has taken into concern on the real costs of adaptation measure through availability of institution, resources and access new technology etc. On the perspective the Twelfth Five Year Plan (2012-17) being a centered on the theme of “faster more inclusive and sustainable growth”. The Approach Paper of this plan has also outlined the challenge of climate change. It is calls by twelfth five year plan to implementing activities such as low carbon mitigation strategy under National Action Plan on Climate Change.

References

- Black, R., & Sessay, M. (1998). Forced migration, natural resource use and environmental change: The case of the Senegal River Valley. *International Journal of Population Geography*, 4(1), 31-47.
- Black, R. (2001). *Environmental refugees: myth or reality?* (Vol. 34, p. 13). UNHCR.
- Bates, D. C. (2002). Environmental refugees? Classifying human migrations caused by environmental change. *Population and environment*, 23(5), 465-477.
- Bunsha, D. (2007), 'gone with the waves: rapid sea invasion along the gujarat coast is forcing families of fishermen to abandon the sea and their homes. vol. 24, no.14, frontline (the hindu, 2007)<http://www.frontline.in/static/html/fl2414/stories/20070727000206600.htm>
- Castles, S. (2002). *Enviromental Chnage and Induced Migration: Making Sense of the Debate'* (Vol. 34). Working Paper, UNHCR http://www3.hants.gov.uk/forced_migration.pdf
- Change, C. India: Impacts, Policy Responses and a Framework for EU-India Cooperation. 2008. *Policy Department Economic and Scientific Policy, European Parliament.*
- Chaturvedi, R. K., Kattumuri, R., & Ravindranath, D. (2014). Mainstreaming adaptation to climate change in Indian policy planning. *International Journal of Applied Economics and Econometrics*, 22(1), 23-56.
- Fishman, R., Jain, M., & Kishore, A. (2013). *Groundwater Depletion, Adaptation and Migration: Evidence from Gujarat, India.* International Growth Center Working Paper.
- Grothmann, T., & Patt, A. (2005). Adaptive capacity and human cognition: the process of individual adaptation to climate change. *Global Environmental Change*, 15(3), 199-213.
- Government of India (2008), National Action Plan on Climate Change, Prime Minister's Council on Climate Change, New Delhi.
- Jülich, S. (2011). Drought triggered temporary migration in an East Indian village. *International Migration*, 49(s1), e189-e199.
- Keane, D. (2003). Environmental Causes and Consequences of Migration: A Search for the Meaning of Environmental Refugees, *The. Geo. Int'l Envntl. L. Rev.*, 16, 209.

- Kolmannskog, V. O., & Skretteberg, R. (2009). *Climate changed: people displaced*. Norwegian Refugee Council.
- Kraler, A., Nack, M., & Cernei, T. (2011). Climate refugees: Legal and policy responses to environmentally induced migration. *DGIPOL Policy Department C: Citizens' Rights and Constitutional Affairs Study*. Brussels: European Parliament.
- Khatun, M., & Jensen, L. (2014). Reintroducing moral community: A new beginning to promote justice for environmental.
- Loneragan, S. (1998). The role of environmental degradation in population displacement. *Environmental change and security project report*, 4(6).
- Lopez, A. (2007). Protection of Environmentally-Displaced Persons in International Law, *The. Envtl. L.*, 37, 365.
- Laczko, F., & Aghazarm, C. (2009). Introduction and overview: Enhancing the knowledge base. *Migration, Environment and Climate Change: Assessing the Evidence*. Geneva: International Organization for Migration, 7-40.
- Leckie, S., Simperingham, E., & Bakker, J. (2011). *Climate change and displacement reader*. Earthscan.
- Myers, N. (1993). Environmental refugees in a globally warmed world. *Bioscience*, 43(11), 752-761.
- Myers, N., & Kent, J. (1995). *Environmental exodus: an emergent crisis in the global arena*. Climate Institute.
- Mahapatra, R. (2000). 'sea level are rising: people's perceptions and scientific projection', info change news& features, (down to earth) <http://infochangeindia.org/disasters/related-features/sea-levels-are-rising-peoples-perceptions-and-scientific-projections.html> accessed 07/02/2015
- McCarthy, J. J. (2001). *Climate change 2001: impacts, adaptation, and vulnerability: contribution of Working Group II to the third assessment report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

- Myers, N. (2002). Environmental refugees: a growing phenomenon of the 21st century. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 357(1420), 609-613.
- Martin, A. (2005). Environmental conflict between refugee and host communities. *Journal of peace research*, 42(3), 329-346.
- McNamara, K. E. (2007). Conceptualizing discourses on environmental refugees at the United Nations. *Population and Environment*, 29(1), 12-24.
- Morrissey, J. (2012). Rethinking the 'debate on environmental refugees': from 'maximalists and minimalists' to 'proponents and critics'. *Journal of Political Ecology*, 19, 36-49.
- Mahanta, R., & Das, D. (2012). Common property resources degradation and migration: a case study of Assam. *Journal of Human Ecology-New Delhi*, 38(3), 223.
- Nicola, M. (2009). Climate change in india: a humanitarian perspective', the mantle, 2 november, 2009.
- Oli, B. (2007). Climate change and forced migration: observations, projections, and implications', a background paper for human development report 2007/2008, fighting climate change: human solidarity in a divided world, human development report office, occasional paper, 2007, pp.17.
- Oxfam, (2009). The future is here: climate change in the specific', briefing paper, 2009.
- Parikh, J. K., & Parikh, K. (2002). Climate change: India's perceptions, positions, policies and possibilities. *Organization for Economic Cooperation and Development, Paris*.
- Panigrahi, (2012). Distress migration -western odisha', <http://www.lokadrusti.org>
- Panda, A. (2010). Climate refugees: implications for India. *Economic and Political Weekly*, 76-79 <http://ssrn.com/abstract=1935922>
- Rajan, S. C. (2008). Climate Migrants in South Asia: Estimates and Solutions–A report by Greenpeace <http://www.greenpeace.org/india/en/publications/blue-alert-report/>
- Revi, A. (2008). Climate change risk: an adaptation and mitigation agenda for Indian cities. *Environment and Urbanization*, 20(1), 207-229.

Ranajan, K.P. (2009). Thanks to climate change environmental refugees on rise, deccanherald, <http://www.deccanherald.com/content/23878/thanksclimatechangeenvironmentalrefugees.html> accessed- 08/02/2015.

Shurkey, A. (1993). 'Pressure points: environmental degradation, migration and conflict', project of the peace and conflict studies programme, university of toronto and the american academy of the arts and sciences, cambridge, massachusetts. http://www.cmi.no/publications/file/1374_pressure-points-environmental-degradation.pdf

Sahoo, S. (2005). Tribal displacement and human rights violations in Orissa. *Social Action: A Quarterly Review of Social Trends*, 55(2), 153-66.

Venkateswarlu, B., & Singh, A. K. (2015). Climate change adaptation and mitigation strategies in rainfed agriculture. In *Climate Change Modelling, Planning and Policy for Agriculture* (pp. 1-11). Springer India.

Warner, K. (2011). Environmental change and migration: methodological considerations from ground-breaking global survey. *Population and Environment*, 33(1), 3-27