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Development-Induced Displacement and Development-Induced Environmental Degradation: Understanding the Risks of Development on Communities & Environment in India

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Abstract

Development-induced displacement (DID) in India affects the poorest population of the country, more specifically tribals, Dalits, farmers, and women, leaving them displaced, impoverished, and socially disconnected. While these communities pay in the form of their land, livelihood,education, and more to give way for development projects, they hardly benefit from the project that caused their displacement in the name of larger national interest.

Mega development projects also cause vulnerability to the environment. In developing countries with a rapid pace of growth, measures forenvironmental protection are ignored. Deforestation, carbon emission, surface and groundwater pollution, andrising temperature are some of the development-induced environmental degradation issues.

This paper is based ona literature review primarily, which outlines the different risks of DID on communities in India. The Impoverishment Risk and Reconstruction Model of renowned sociologist Michael Cernea have been used to understand the risks of DID. It also focuses on the adverse effects of development projects on the environment and suggests ways to attain sustainable development in India. The data used in the paper is extracted from the carefully selected literature on the subject.Although, much researches have been undertaken on thesubject, this paper tries to develop some compelling suggestions to add to the existing knowledge of it.

Keywords: Development-induced Displacement, Environmental Degradation, Human Rights, Forced Displacement.

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Faisal Mahmood

Introduction

Though having ample literature on the sociology of voluntary settlement, the development researchers havenot given much importance to the problemof involuntary displacement and resettlement. It was in the second half of the 1980s and the first half of the 1990s that the situation has changed(Cernea, 1996). The extensive nature and frequency of development-induced displacement in cases like Narmada have brought the resettlement problem to global attention(Drydyk, 2007).A World Bank study, as mentioned in Drydyk (2007), estimates the displacement of about 10 million people annually during the 1980s as a result of dam construction, urban development, and transportation projects. In a study published in 1997, Cernea estimated that the total number of displaced people by development projects during the decade was between 90 and 100 million, exceeds the total number of refugees from wars and natural disasters (Cernea, 1997). This total goes further, as Terminski (2013) estimated that the economic development projects result in the displacement of 15 million people each year. The World Commission on Dams in its report of 2000 revealed the data that the construction of large dams alone caused the forced displacement of 40-80 million people from their homes(Pettersson, 2002; World Commission on Dams, 2000). Cohen and Deng (1998), while addressing the negative impacts of the development, argued that the dam-building could be considered a 'man-made disaster' because the construction forces a large population to leave their homes without proper resettlement, compensation, and protection of human rights.Aboda et al. (2019) provide that in most developing countries, large-scale development projectshave rendered an increasingly sizeable population homeless, landless, jobless, and food insecure. Their socio-economic asset base is often destroyed, hence exposing them to the vulnerability of environmental and social changes.

Though there are examples of development driven displacement and resettlement in developed Western countries, densely populated developing countries, like India and China, who carry intensive infrastructural economic development, while not taking the principles of sustainable development into account, face the problems to a greater extent (Terminski, 2013). Post-colonial India witnessed the implementation of mega infrastructure projects like big dams, mines, transportation, and ports to achieve development to improve the standard of living through the use of technology. This notion of development was regarded as a necessary leap forward from the pre-independence underdevelopment. Liya (2015) mentioned that the dam construction was done with the sacred feeling of statehood and interpreted as *"the temples of modern India."*She further added the words of Prime Minister Nehru from his 1948 address at the site of Hirakund Dam in Orissa: *"If you have to suffer, you should do so in the interest of the country."*The government of India admitted its failure in the resettlement of about 10 million people – most of the researchers claim these figures far behind the real numbers – who were displaced by the development projects; dams, mines, highways, etc.(Pettersson, 2002). Many studies conclude that resettlement poses severe negative effects on the vulnerable sections of society: poor, women, children, tribals, and other socioeconomically vulnerable sections. Among more than 20 million dam projects that led displaced people till 1990 in India, only 24.9 percent rehabilitated. The majority of the displaced were tribal communities (Kumar & Mishra, 2018). There are also cases where people faced multiple displacements. Many families in Madhya Pradesh faced three times displacement within 30 years after their first displacement in the early 1960s by Rihand Dam. In a similar case of Mangalore Port project-led displacement in the 1960s, fishing families uprooted and relocated where they adopted agriculture according to the geographic location of the relocation area. They were again displaced in the 1980s by the Konkan Railway project. There are other such cases of multiple displacements to found which are the worst examples of development-induced displacement (Ray, 2000).

Development by the hydroelectric dams, mines, highways, special economic zones (SEZs), etc., serves the interests of the dominant class of society and crushes the poor, who sacrifice

in the 'larger national interest.' For the latter, who face negative consequences, this kind of development is nothing more than torture that generates the adverse conditions of living. They face impoverishment, environmental changes, loss of social capital, psychological trauma, and deprivation of ownership of production means, life, and livelihood(Saxena, 2008). Environmental degradation, as a result of development projects, is an issue of growing concern in India. Development-induced environmental degradation occurs because of unsustainable development projects, like rampant urbanization, industrialization, deforestation, and uncontrolled extraction of natural resources(Thakur et al., 2014).Agriculture is the sector likely to be most seriously affected by development-caused environmental degradation(Kannan et al., 1983).Agriculture-based societies, especially tribals, may face long-term deterioration in the security of whole communities because of development-induced environmental contamination(Liya, 2015).Health risks affecting the displaced people usually result from the progressive degradation of the environment(Terminski, 2013).

The first section of this paper shortly introduces the Impoverishment Risks and Reconstruction model of Michael Cernea. Then it has a detailed discussion on the risks of development-induced displacement on the lives of the forcibly resettled population in India. The second part of this paper tries to shed light on the various negative impacts of development on the environment. The paper separately discusses several kinds of development activities and their effects on the environment. It also presents some related cases and examples related to the issue. Finally, this paper also proposes some suggestions to deal withdevelopment-induced displacement and development-induced environmental degradation.

I. Development-Induced Displacement

The Impoverishment Risks and Reconstruction Model

Michael Cernea, a World Bank-based sociologist and anthropologist, developed the Impoverishment Risks and Reconstruction (IRR) model in his different studies carried out in the 1990s to identify the risks intrinsic to the forced rehabilitation. The eight key risks of impoverishment in forced displacement identified by this model are; landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity, social disarticulation, and loss of access to common property resources. On the other part, the model suggests risk reversal approaches backed by the proper aids to improve the living of those displaced(Cernea, 1997). As mentioned in Hemadri et al. (2000), *Cernea believes that 'targeted measures – economic, technical, legal and cultural — must be undertaken to orient from the outset the planning of resettlement towards the reconstruction of livelihood, so as to prevent impoverishment.'*

The IRR model has been used as a tool by many researchers to assess the negative social and economic consequences of displacement. It provides a systematic review of those negative consequences(Cao et al., 2012). Renowned Indian anthropologist Lakshman Kumar Mahapatra used it to study and examine the forced resettlement risks in India by development projects from 1947 to 1997(Liya, 2015). The findings based on the IRR model can be the pioneer to understand the risks of project-led displacement on the affected population by offering grounds to investigate factors accounting for the continued occurrence and persistence of those risks. Hence, it can effectively guide adequate plans and proper financing to improve the socio-economiccondition of the uprooted population(Aboda et al., 2019). Liya (2015) noted that the IRR model serves several parts, such asa predictor of impoverishment risks,a guide forhypothesis formulation and conducting theoretical field research, and a compass for mitigation or prevention of impoverishment risks.

Next, we will try to understand some important risks inherent in the forced resettlement with the help of the 'Impoverishment Risk and Reconstruction Model (IRR Model)' of Michael Cernea.

Assessing the Risks of Development-induced Displacement Through IRR Model: The case of India

(a) Landlessness

The land is a primary source of livelihood, develops a sense of belonging and social security in rural and tribal peoples(Aboda et al., 2019). Land acquisition for the implementation of development projects leaves the displaced people landless. Landlessness negatively impacts the economic foundations of the whole community by deteriorating the bases of 'productive systems,' 'commercial activities,' and 'livelihoods'(Chakroborty& Narayan, 2014), hence sets the level of impoverishment and also leads to other risks recognizes under IRR model, like joblessness. For the tribal, agricultural, and other vulnerable communities, the land provides jobs, food supply, and money by selling the part of the crop to acquire their needs (Mahapatra, 1999).In the words of Cernea (1997): *"Expropriation of land removes the main foundation upon which people's productive systems, commercial activities and livelihoods are constructed. This is the principal form of 'decapitalization' and pauperization for most rural and many urban displaces, who lose this way both natural and manmade capital"*.

The Master Plan of Delhi in 1962 (the Delhi Experiment) covered the land acquisition of over 60,000 acres for urbanization schemes(Hoda, 2018), left thousands of families landless. It is known as the 'largest urban land acquisition in India'(Liya, 2015). In a study on land acquisition for Tata Metaliks in 1992 in West Bengal, Guha (2007) provided datacontaining the number of affected households of five villages. This data shows that the land of 144 households of five villages has been acquired during the

project implementation in which *"they lostnot only [their] economic security but also social status and empowerment achieved through political movements and land reforms (Guha, 2007)."*

Cernea (1997) pointed out the case of the Rengali Project in which landlessness surged from 4.6 percent to 10.9 percent of families after the relocation. The risk of landlessness is impossible to reduce until the resettlement authorities provide the proper policy mechanism based on field studies, such as alternative land for land.

(b) **Joblessness**

Landlessness is a leading factor of another impoverishment risk of joblessness arise from the development-led displacement in rural societies where land serves as the job creator for the locals. Similarly, it is difficult to find new and lasting jobs for the relocated population of urban areas who lost their jobs in economic development. The problem of joblessness ischallenging to tackle even in job-secured conditions. The mining projects, for instance, follow the job-based compensation by providing one family member with a job while leaving other members likely jobless(Mahapatra, 1999). *"The previously employed may lose in three ways: in urban areas, they lose jobs in industry and services, or other job opportunities; in rural areas, they lose access to work on land owned by others (leased or share-cropped) and the use of assets under common property regimes*(Cernea, 1997)*."*

Fernandes (2003) mentioned an Andhra Pradesh based study in which it was found that "*in a sample of 635 families, 27 were in the process of displacement or deprivation. Of the remaining 608, availability of employment had declined from 509 (83.72%) before the project to 253 (41.61%) after it. The project gave very few of these jobs."* In a similar study, researchers have found that only one member of each of 9,000 families out of 266,500 was employed under the resettlement scheme of the project(Fernandes & Asif, 1997). A survey, mentioned by Cernea (1997),carried out among tribal households in five villages at Talcher, Orissa, found an increase in unemployment from 9 percent to 43.6 percent, accompanied by a largeshift from primary to tertiary occupations(Pandey & Associates, 1996).

(c) **Homelessness**

Homelessness or loss of shelter is a common risk in all types of displacement(Terminski, 2014). *"Loss of housing and shelter may be only temporary for many displacees, but for some homelessness remains a chronic condition. In a broader cultural sense, loss of a family's home is linked with the loss of a group's cultural space, resulting in alienation and deprivation" (Cernea, 1997)*. A study found that the displaced people faced extra monetary expenses in the form of transportation costs, housing rents, quick house building, etc., during the transitional period of relocation(Getu& Assefa, 2015), which push them into marginalization that is another potential risk of the displacement. Cernea (1997) suggests that the risk of homelessness on projects affected families rises in the absence of explicitly provided improvement in housingconditions and the compensation based on the replacement value.

In many cases, it has been found that even cash compensation for housing remained unsuccessful. Poor people in rural areas believe more in investing in the land than building homes as they already live in temporary housings provided by the project; suchan approach makes the risk of homelessness chronic(Cernea, 1997; Mahapatra, 1999). Mahapatra(1999) mentioned that poor displaced people in Hariharjore Project, Sonepur in 1995, spent their house-building advances while preparing their land for cultivation. In Maharashtra, 59 percent of the Kukadi-Krishna irrigation projects affected families were living in temporary or semi-permanent housings even more than a decade after the relocation (Cernea, 1997). Mahapatra (1999) added similar studies of Pandey and associates (1996, 1998), which revealed a "*substantial decline over the years in the area allotted by projects in Orissa for homestead plots after resettlement – from 0.33 acres on average to 0.08 acre. Under these conditions, there will be homelessness in a relative sense, in relation to need, and in the next generation"*.

(d) **Marginalization**

Relocation to a new place causes a relative-degradation in the socioeconomic status of the displcees. Unnecessary spending of cash compensation leads to the marginalization of displaced persons(Chakroborty& Narayan, 2014). Large-scale infrastructure projects bring changes in the social and physical environment because of the involvement of outside workers, machinery, and other project-related activities in the area. This change creates a sense of marginality among the local people about their culture, work, and social status. For the resettled population, it is hard to change according to the new environment – where all their previous knowledge and skills are less valuable – and possibly down the status of the whole resettled ethnic group(Koenig, 2001). A study by Bharali (2007), as mentioned in Aboda(2019) pointed out the reduction in yield production by displacement affected people, as the development project implementation lowered their land ownership. Farmers that owned small and marginal plots of land became landless, hence making such households to be more marginalized than before the displacement. Scholars pointed out three types of marginalization faced by displaced people in terms of social, economic, and psychological, whichare experienced through the loss of human capital, feelings of vulnerability, and loss of human capital (Patel et al., 2015; Terminski, 2014). *"The relative economic marginalization begins long before actual displacement, becauseof disinvestments and noninvestment in infrastructure and services in condemned areas" (Cernea, 1997).*A study on the NTPC project in Orissa shows, *"those*

who are aged or those who could not get jobs in the project have no other sources of earning and become marginalized. Again, those who got jobs in the project have to manage the expenditure needs of their whole family based on a single income"(Pandey & Associates, 1996, 1998). Guha (2007) mentioned the case of Nirod Choudhary, a peasant affected in the Tata Metaliks project, whose livelihood was based on 2.5 acres of farming land he owned, which was later acquired for the projects. The compensation (about 56,000 INR) he got for the land spent in the marriage of his daughter. In the following years, landless Nirod was found working in a mason as a helper, and his sons, who dropped their schools, were working as daily laborers.

(e) **Increased Morbidity and Mortality or Health-related risks**

"Serious declines in health result from displacement-caused social stress, insecurity, psychological trauma, and the outbreak of relocation-related illnesses, particularly parasitic and vector-borne diseases, such as malaria and schistosomiasis"(Cernea, 1997), and the outbreak of sexually transmitted disease like HIV/AIDS, etc., which are difficult to quantify(Kravitz et al., 1995). Health risks on resettlement sites are exacerbated by failures related to the unsafe drinking water supply, improper sanitation and sewage management, and fair price shops or below poverty line identity cards for subsidized food rations(Cernea, 1997; Patel et al., 2015). Studies measured the broader negative changes in mental and physical health as a consequence of the forced relocation of peoples to a new social order in a new place(Xi & Garcia-Downing, 2013). Cao et al. (2012) concluded with the support of some studies that exposure to undesirable and uncontrollable events leads to distress, which in turn causes healthdeterioration (McFarlane et al, 1983); there is consistent evidence showing a link between stress and infectious diseases(Cohen & Herbert, 1996; Cohen & Williamson, 1991).

Various studies on development-induced displacement in India revealed the quantum of health-related risks on resettlers. The high health risk of diseases, like malaria, diarrhea, and dysentery, has been found in the thermal power resettlement colony near Hirakund reservoir in Orissa; water pollution by the power plant dumped toxins caused the skin diseases and other illnesses(Mahapatra, 1999; Pandey & Associates, 1996, 1998). In a survey on development-led health risks in Basic Services for Urban Poor (BSUP) projects in Ahmadabad, Patel et al. (2015) revealed inadequate health facilities. Only two of all constructed healthcare centers on the BSUP sites were found functional.The Ahmedabad Municipal Corporation (AMC) operated weekly mobile health vans, which were provided following civil society, media, and judicial pressure were insufficiently performing the taskat'interim sites.'

(f) **Food insecurity**

Food insecurity is the leading risk the development projects affected families face(Guha, 2007). Land provides people food, job and money by selling the product; hence land acquisition for initiation of development projects causes a drop in the traditional food supply systems or income(Cernea, 1997;Chakroborty& Narayan, 2014). *"Forced uprooting increases the risk that people will fall into chronic undernourishment, defined as calorie-protein intake levels below the minimum necessary for normal growth and work, and food insecurity"*(Cernea, 1997). This malnutrition may increase displacees' vulnerability to illness(Cao et al., 2012), hence food insecurity also enlarges the health risk on the project affected people(Patel et al., 2015).

Ota (1996), as mentioned in Mahapatra (1999), found the grave condition of food insecurity faced the displaced people even after the 12 years of displacement by the Regali project of Orissa. A drastic decrease in grain production from 16 quintals to 7 quintals per family made displaced people half-starved for about four months. A similar study found that a peasant of some acres used his land for growing vegetables and other crops lost his land in the TATA Metaliks project in return for 66,000 INR compensation, which he spent on his daughter's marriage and domestic expenses. Marginalization in terms of land and its production led his family to the risk of food insecurity(Guha, 2007).

(g) **Loss of access to common property**

Displacement disturbs the lives of affected people by influencing their connections to the natural and common property resources, such as forests, rivers, hills, etc., which providedthem primary productive resources or may serve as complementary resources for individuals or households. Loss of these resources has negative impacts on the income and livelihood of relocated families as they gain a significant part of their livelihood from common property resources; it may also cause psychological illness by raising the level of distress in outsees(Cao et al., 2012; Koenig, 2001).

This component of the impoverishment process is probably the most ignored by governments(Mahapatra, 1999).As India has laws concerning the only individual title of land ownership, the state has land rights without a formal title. Common property resources are often of ambiguous tenure. Consequently, the families who faced relocation from such areas or restriction on the use of common property resourceswere not compensated properly because of the untitled customary occupation of common property andthe government's reluctance to allot land to groups rather than individuals. This discrepancy between law and reality is the source of huge social and economic problems(Fernandes, 2008; Koenig, 2001).*"In various semi-arid regions of India between 91 and 100 percent of firewood and 66 and 89 percent of poor households' grazing needs are supplied by lands held under common property regimes. Another important common property asset in India is burial grounds"*(Mahapatra, 1999).A respondent in a study on the

IB valley coalfield told the researcher that the project in the area created adverse conditions for the availability of water, fuel, and fodder – unlikely to those prior to the displacement. Also, mining in the area spoiled the water, which was too polluted for consumption(Sahoo & Mishra, 2016).Cernea (1997) mentioned the case of displacement in Orissa, where no compensation has been provided for common property resources during a series of development-borne displacements from 1950 to 1994. The families displaced in the Rengali dam project, who all had access to the common grazing lands and burial grounds, had decreased to 23.7 percent and 17.5 percent access to grazing lands and burial grounds, respectively.

(h) **Social Disarticulation**

The relocation of people causes profound unraveling of the social patterns and negative impacts on their culture by exposing them to a new culture(Terminski, 2013). This social unraveling harmfully contributes to transforming the relocation areas into *"anomic region"* or *"anomie-ridden areas"*(Atteslander, 1995), in which displaced people have a negative sense of insecurity, threat to identity and culture(Cernea, 1997). In agricultural and hunting-gathering societies, barter and social ties play a dominant part in the working of the economy. Resettlement dismantles the community ties by atomization of them, because of which people lose their access to the social capital[1](Terminski, 2013)*"The loss of social capital diminishes society's capacity to cope with and recover from non-project related threats*(Aboda et al., 2019)*."*

Cernea (1997) mentioned that *"dismantled social networks that once mobilized people to act aroundcommon interests and to meet their most pressingneeds are difficult to rebuild. This loss is bigger inprojects that relocate families in a dispersedmanner, severing their prior ties with neighbors,rather than relocating them in groups and socialunits."*Mahapatra (1960) provided an example of this social capital by mentioning the case of the Hill Bhuiyan family in 1956. In a marriage in this family, neighbors and other contacts provided the family with support in the form of grains, goods and artifacts, animals, alongwith manpower at the time of the wedding with the understanding of return by the family in a similar way in future for someone other. A study on the displaced families byHirakud dam in India revealed that the economic status of households *"had been completely shattered"*(Baboo, 1992)and they could not be merged into a new environment for years after location, which has led them towards chronic marginalization(Cernea, 1997).

II. Development-Induced Environmental Degradation

Environmental degradation is a consolidated effect on planet earth through expanding human population, loss of biodiversity, deforestation caused desertification, global warming, extraction of natural resources by the extensive use of technology to acquire modernization or development, etc. It causes the depletion of natural resources in the form of extinction of species, pollution in the air, water and soil, and rapid population growth(Rinkesh, n.d.).The usage of mammoth machinery in the construction of dams and other mega projects causes various types of pollutions, including contamination of air, soil, and water. Factories, companies, and extended urban settings resulted from the development projectsfurther damage the environment through chemical waste, toxic gases, and motor vehicle smokes. Central Pollution Control Board of India reported in 2005 that Delhi, Mumbai, Bangalore, Kolkata, and Ahmadabad together caused 64 percent and 23 percent of the country's total vehicular pollutants emission of Carbon monoxide (CO) and Hydrocarbons (HC), respectively. In the list, Delhi hits the highest in the country, leading ahead to Mumbai, Bangalore, Kolkataand Ahmadabad(Thakur et al., 2014). The development process accelerates the level of Greenhouse Gas Emissions faster in developing countries like India. In 2014, it has been reported thatrelative to Gross Domestic Product (GDP) India's Greenhouse Gas emissionwas two timesthe world average. A significant part of this emission comes through the energy generation and industries resulted from the development projects, as mentioned earlier. The energy sector and industries respectively contribute 68.7 percent and 6 percent of the total Greenhouse Gas emission of India(*Greenhouse Gas Emissions Factsheet: India*, 2019). India shares significantly also in the world's carbon dioxide (CO2) emission with continuous growth in it. International Energy Agency (IEA) reported a rise of 4.8 percent in India's CO2 emission in 2018, larger one-year growth than the United States and China(*India's Carbon Dioxide Emissions up 5%*, 2019).

Dam building is well regarded as the symbol of national achievement(Bocking, 2009) and modernity(Kaika, 2006). Besides the many advantages, dams have many negative impacts on the environment. The construction of multipurpose large dams changes the several thousand years old relationships of land and water. It destroys the existing balance of the ecosystem and direly impacts the environment in the form of soil erosion, extinction of species, the spread of diseases in the neighboring area(*Environmental Impacts*, n.d.). Siltation is another issue in dammed waters that impacts the underwater lives and also the dam capacity itself. Dams lower the water flow, thus the silt particles become suspended and settled on the reservoir bed. Siltation causes problems for fishes and other underwater species as it seals the Oxygen-filled spaces under the rivers(Hays, 2017). Kannan, et al. (1983) in his studies mentioned the problem of siltation in the Tungabhadra river valley project and GujaratUkai project of India.

Mining has impacted us in variouswaysdirectly or indirectlysince early human civilization. Yet again, mining

1 *"The core idea of social capital theory is that networks have value… social contacts affect the productivity of individuals and groups. Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them (Putnam,2001)."*

has received extreme criticism in recent years because of the side effects caused by it. Mining affects the environment in many ways, which are; deforestation to acquire vast clear area for mining; mining associated activities cause noise pollution; air pollution by transferring the big amount of dust particles into the air; mining land turns into mine-spoil land that cannot be used for any other purpose(Babu, 2016). Terminski (2013) added that *"the consequences of mining also lead to negative environmental changes such as river, land and air contamination, resulting in a significant level of forced migration later on"*.

Urbanization is another primary reason for development-induced environmental degradation. It is a form of internal migration of poor people from rural areas(M. Kearney, 2019), who face towards towns, generally for better employment opportunities. The population surge caused by this movement creates a land requirement for the expansion of cities, so the land is needed to be acquired for the construction of homes and other necessary things(Choudhary MP, Chauhan GS, 2015). Urbanization in India has a *"faster rate than in the rest of the world*(Chauhan, 2007)*."* It started rapidly after independence as the country nodded for the growth of the private sector of the economy. The number of urban populations presented by the 1901 Census of India was 11.4 percent, which was increased to 28.53 percent in 2001 and 30 percent according to the recent census of 2011. A United Nations-led study expects that by 2030, India's 40.76 percent population will be living in urban areas(Chauhan, 2007). Urbanization and industrialization at such an alarming rate degrade the air and water quality and intensifies '*the contamination of the wellsprings of water'*(Chopra, 2016). He pointed out that the rise in demand for electricity, lodging, transport, correspondence, water, etc. exhausts the valuable ecological asset base of the urban areas.

While combining the above-discussed points, one can conclude that Economic development in the absence of themeasures of sustainable development has cruelly affected the planet. Shrinkhal (2019) opined that: *"It is economics that has dictated environmental policy. Emphasis has been placed on the role of science and technology as a catalyst for integrating ecology with economics. In this process, sustainable development became a buzzword."*

Discussion

This paper is a review of the literature based on the problem of development-induced displacement, especially in India. Literature has been selected from the studies on various aspects of development-induced displacement, such as dam construction, excavation of natural resources or mining, urbanization, etc., for a better understanding of inherent risks related to these projects. This paper shows that people displaced and resettled in development projects are exposed to extensively hazardous conditions rather than benefits. The IRR model is used to examine these risks. All the risks mentioned in the model are interlinked, causing impoverishment among the affected population. Data used in the study suggests that landlessness can be considered as one of the most potential risks, results in other risks such as unemployment, food insecurity, loss of common property resources, and leaving people marginalized. Acquisition of agricultural land breaks food supply in the area by affecting the production system. Many researchers in their studies, considering the IRR model for identifying the risks, suggested that the groups, such as tribal, minorities, women, children, and elderly are more vulnerable. Cernea (2004) notes that the risks faced by resettled people also affect the regional economy. They may cause significant loss to the economy as well.

On the other part, the cost of large-scale development in developing countries is paid at the expense of environmental quality. The unchecked economic activities damage natural habitat with the actual or potential deterioration of natural assets. Development projects such as mining, and dam result in increased consumption of non-renewable resources, growing pollution, global warming (ultimately leading to climate change), and potential loss of biodiversity.

Conclusion & Suggestions

This paper discusses the risks created by mega-infrastructure projects in India, resulted in the impoverishment of the people and environmental degradation. The forced displacement and resettlement of poor families through *eminent domain* abuses their right to live with dignity. These development activities transfer benefits to others on the cost of making project-affected people poorer and marginalized by changing every important aspect of their lives.Researchers have concluded the development-induced involuntary displacement as a serious threat to various human rights of resettled people. Various studies on the Indian casesof the DID found the eight impoverishment risks of Cernea's model highly potential, leading to a worsening life and livelihood. On the other hand, development has negative effects onthe environment as well. Extensive development activities deteriorate the environment, which further links with the risks under the IRR model, such as the destruction of common property resources and marginalization.

This paper has referred to various literature on the issue of forced displacement and development-induced environmental degradation. Still, some gaps need theconcern to mitigate these problems. Risks of impoverishment can be reduced to an effective extent by addressing the below-mentioned points during the reconstruction of livelihood of people, which includes:

1. The fragmentation of cohesively living families leads to the psychological distress of people.So, the authorities involved should ensure that the affected communities must not be disintegrated during resettlement.

2. The government should provide proper attention towards creating sufficient jobs for those resettled, as this is the root cause behind most of the risks under the IRR model.

3. There is a need for well-planned and creative compensation measures for the acquired propertybased on proper research on the concerned area. Equitable compensation efforts such as land for land, compensation for the loss of common property resources, compensation at the replaced value of land, etc. need to be followed.

4. Government and Courts should themselves monitor the implementation of compensation measures and not leaving it to the companies or other private entities.

5. Project implementation should properly follow the measures of sustainable development.

6. Projects authorities must assess the impacts and efficiency of projects on the environment and strive to find less-hazardous alternatives.

7. Regular quality check of vehicles and heavy machinery used in construction.

8. Making the public aware of the environmental issue through long-term environmental education.

Development and the environment both are inalienable parts of our lives. While striving for a developed world as well as a better environment, the words of Ban Ki moon, the former Secretary-Generalof the UN, must be remembered:

"Saving our planet, lifting people out of poverty, advancing economic growth… these are one and the same fight. We must connect the dots between climate change, water scarcity, energy shortages, global health, food security and women's empowerment. Solutions to one problem must be solutions for all."

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Global Research Forum on Diaspora and Transnationalism (GRFDT) is a consortium of researchers and policy makers drawn from national and international universities, institutes and organizations. GRFDT is presently based in India and is shaping as the largest such group focusing specifically on the issues related to diaspora and transnationalism.

The GRFDT works as an academic and policy think tank by engaging national and international experts from academics, practitioners and policy makers in a broad range of areas such as migration policies, transnational linkages of development, human rights, culture, gender to mention a few. In the changing global environment of academic research and policy making, the role of GRFDT will be of immense help to the various stakeholders. Many developing countries cannot afford to miss the opportunity to harness the knowledge revolution of the present era. The engagement of diaspora with various platform need to be reassessed in the present context to engagethem in the best possible manner for the development human societies by providing policy in-put at the national and global context.