

## **The Rammam Hydro-Electric Power Project, Darjeeling And Its Impact On Environment: An Empirical Study**

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### **Abstract**

This empirical study examines the environmental and socio-economic impacts of the Rammam Hydroelectric Power Project in Darjeeling, West Bengal. Established in 1972, the project has significantly influenced the local community and environment, especially in the Lodhuma region, where Stage-2 of the plant operates with a generating capacity of 56 MW. The paper explores both the positive developments and adverse consequences of the project. On the one hand, it has contributed to infrastructural improvements, including road construction and electricity supply, thereby boosting the socio-economic conditions of the area. On the other hand, it has resulted in severe environmental degradation, affecting land, water, wildlife, and local livelihoods. The study highlights the displacement of residents, land encroachment, deforestation, landslides, and loss of agricultural productivity. Despite promises of compensation and rehabilitation, many local people remain dissatisfied with the project's implementation. Interviews with project managers, local residents, and workers reveal mixed responses, with many expressing concerns over the environmental destruction and unmet promises. The research further discusses the role of Environmental Impact Assessment (EIA) in mitigating these effects and the measures taken by the government to address environmental protection.

**Keywords-** Environment, Hydro-electric, degradation, displacement, encroachment, deforestation.

### **1. Introduction**

Rammam Hydel power station is a major hydro power project of West Bengal State Electric Board. It was established in the year 1972, evacuating the villagers living on and around the

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Rammam Village. It originates in the Singalila Range and has affected the wildlife habitat. The Rammam project includes a 4.7km tunnel from Mungmungkhola, a distributor of the Lodhama River. The people of the residing area under Jana Kalyan Manch (JKM), have risen in revolt against the WBSEB Hydel power project on the Rammam river several local ngo's have also thrown their weights behind them. The JKM has threaten to launch an agitation if the survey of the river has being carried out by the WBSEB is not stopped within 15 days. The WBSEB is planning to divert the water of Lodhama River in order to make the four turbines work to meet the need of increase power generation. The project has affect the 50, 0000 acres of land and 200 people were displaced. The construction of plan started way back in 1972 when the Environment Protection Act has not been introduced. Moreover the authorities had assured the local people of employment and compensation. Out of 200 people who lost their land, only 120 were given compensation. The rest are still waiting for the promised money. This technical and economic potential is undeniably attractive, the big question is how much of this potential can be exploited without causing widespread environmental damages. There exist general laws in the country which can be invoked in order to punish environmental violations. Under Article 47, 48-A and 51-A(g) of the constitution, Indian Penal Code,1860, The Code of Criminal Procedure, 1973, Code of Civil Procedure,1980(v of 1908), The Specific relief Act,1963<sup>2</sup>.India too has shown its concern over the continuing degradation of the environment. For the better management of its natural resources, the proper protection and conservation for the well being of the future generation, the Government of India has framed National Policy on Environment protection. It may be pointed out here that during pre-1970 era India did not have well framed policy for protecting environment. The UN Conference of Human Environment held at Stockholm, in 1972 proved a turning point in drawing our national concern for protecting environment. The environment degradation is a recent concern and significant to modern social theory, the modern society is seen to be characterized by large-scale environmental degradation. Over the time the Himalayas region has become a victim of conflict and other exogenous environmental challenges such as pollution and climatic change.<sup>3</sup> However, hydropower facilities can have large environmental impacts by changing the environment and affecting land use, natural habitats,

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<sup>2</sup>Mahesh Mathur ,*Legal Control of Environmental Pollution*, pg, 148 (Deep& Deep ,New Delhi 1998)

<sup>3</sup>Ananda Mohan Bhattarai, *Protection of Himalayan Biodiversity* 22 (SAGE Publication India PVT Ltd New Delhi, 2010).

fisheries, water, and wildlife. Hydroelectric power has being effect on the environment degradation. The ecological problems in the developing country like India pose a vital question regarding the survival and the living condition of the people. The global concern for the protection and the improvement of the environment, the nation has devised many strategies for the execution and legislative agencies to follow. The idea of sustainable development was the pole star that led the courts to embark the resolution of the controversial issues. India too showed its concern over continuing degradation of the environment. For the better management of its natural resources National Policy Environment Protection has been frame by the Parliament. During pre-1970 era, India did not have a well framed policy for the protection for the environment.

### **Economic Development and Policy**

The dictionary meaning of the word ‘development’ is gradual unfolding, growth, evolution, well grown state, more elaborate form etc. It is an established fact that economic stability provides the basic for development in other walks of life. Economic development is secured through increase in agricultural and industrial productions. While doing so, many causes disturbance in the biosphere, affects its constitution without having regards to its replenishment. In the process of development, man has done much damage to the forests, wildlife, land surface, water resources and to the atmosphere. Man has developed in fact but only at the cost of his environment, the effect of which is looming large on his head.<sup>4</sup> Having a rich culture, social, ethnic, and religious diversity, India is a developing country with under developed economy. In recent year the entire mankind is confronted with major challenges of survival of the mankind. Human impacts leading to a large-scale degradation of the environment have aroused global concern on the environmental issues in the recent years.<sup>5</sup>

One way of reducing the environmental harm from a large project could be environmental impact assessment of the said large infrastructure project. Environmental Impact Assessment (EIA) is an effort to anticipate measure and weigh the socio- economic and bio-physical change that may result from the proposed project. It assists decision – makers in considering the proposed project’s environmental costs and benefits. Where the benefits sufficiently exceed the

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<sup>4</sup>Dr.H.N. Tiwari, *Environmental law*, 12( Allahabad Law Agency law publishers Faridabad Haryana).

<sup>5</sup> D.V Rao and S.Vijaya Kumar (eds.), *Development With Human Touch*, 16 (Atlantic publishers and distributors, New Delhi, 2000).

costs, the project can be viewed as environmentally justified.<sup>6</sup>

### **Objective Of the Study**

This paper focus on outlining the extent of environmental degradation caused by the establishment of RammamHydor-electric Power Project, identifying both the immediate and underlying causes of the degradation, along with specific initiatives aimed at addressing these issues.

### **Methodology**

#### **Study Area**

The field study was conducted in Rammam hydroelectric power project Stage -2 in Lodhuma region. The power project is divided into three stages and the researcherrestricted her study to stage 2 generating 56MW which was under the WBSEDCL(West Bengal State Electricity Distribution Company Limited). For the collection of data the survey was conducted in different area of lodhuma region such as konkheybong, Majjigaow, Dhoban.

#### **Data Collection**

The present data was collected during the field survey in the nearby area of Rammam Hydroelectric Power Project during the month of April, 2018. An interview method was used to collect data for the research. Local people were interviewed and their feedbacks were collected.

#### **Method Of Sampling**

As the area of survey was wide this made it difficult to the surveyor to survey the entire area. Hence 30 percentages of the people that are the native habitat were interview using simple random sampling method.

#### **Reference Of Inquiry**

The reference inquiry for the research is based on the data collected from the H.R Manager, the Project Manager, the Assistant Project Manager, employees and the people of Lodhuma region.

The main approach of the researcher is to observe the steps that are taken by the WBSEDCL, Forest and the state in protecting environmental degradation that has arises due to the establishment of Rammam Hydroelectric Power Project.

#### **Limitation Of the Study**

The surveyor faced some limitation while conducting the research such as time limitation, non

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<sup>6</sup>A.K Tiwari, *Environmental Law in India*, 374 (Deep & Deep Publications Pvt. Ltd, New Delhi, 1<sup>st</sup>edn., 2006).

co-cooperativeness of the people and transportation issue as it was remotely located.

### **Field Study**

The Ramam power project was divided into 3 stages i.e. stage 1 bearing capacity of 56 MW, stage 2 bearing capacity of 52 MW and stage 3 bearing 120 MW. As the power project was divided into three stages in a wide area of land, the researcher focused on studying the second stage of the project which was under the control of West Bengal State Electricity Distribution Company Ltd (WBSEDCL).

Several interviews were conducted with the stakeholders of the establishment including the manager, employees, people living in the area, etc. for extensive study. Highlights of few important interviews are provided below:

#### **Interview -1**

An interview was conducted with Miss Rubina Pradhan, Manager of the Rammam Hydroelectric power project.

During an interview the manager stated that the establishment of the hydroelectric power project has developed a Lodhuma region. She explained that there was no such environmental degradation caused by the project. Regarding the safeguard of the environmental pollution various measures were taken by the state and pollution control board. The power project has planned for tree plantation various other policies for village development has been taken from during the past few years.<sup>7</sup>



<sup>7</sup> Interview with Miss Rubina Pradhan, HR Manager, Rammam Hydroelectric power Project, May 3, 2018.

## **Interview-2**

An interview was conducted with Miss Soma (changed name) resident of Lodhuma Age- 53 according to her statement she has stated that after the establishment of the Rammam hydroelectric power project, though there were positive impact which led to a major factor of development in the village such as facilities of electricity and construction of road. Simultaneously create huge effects on the environmental degradation as the land is being deteriorating day by day due to blasting and landslide which effect on agriculture. As compare to the productivity the area used covered with oranges and dense forest, were such scenic beauty are lacking by the present generation. People of the Lodhuma region are mostly depend on agriculture and animal husbandry for their livelihood where a vast changes causes by the power project.<sup>8</sup>

## **Interview-3**

An interview was conducted with Rupden sherpa who was an employee of the Rammam Hydroelectric power project during an interview we asked many questions regarding the environmental degradation caused by the power project. As per his statement he has stated positive effect of the power project. As per his opinion **“This project has made much development in the area if the power project has not established then the lodhuma region still languish in dark”**. He has also said that the development of the road from Maneynhanjang to Lodhuma has also been constructed as during the establishment of the power project the prime factor was the construction of road in the area of construction, so road construction made by the PWD was the first area of development by the power project. So gradually the establishment of the power project led to establishment of the region.<sup>9</sup>

## **Interview-4**

During the interview, conducted to a lady named Mrs Maya (changed name), Age 73 who was the native resident of Rammam and was residing in the village before the establishment of the power, she stated her grievances regarding the power project as large portion of land nearly 3acres 31 decimal of land was encroach by the power project and was promised during the encroachment to provide them with job opportunity as well as rehabilitation but no such promises were granted after the establishment of Rammam hydropower project. He also narrated

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<sup>8</sup> Interview with Ms. Soma, local residence of lodhuma, may 6, 2018.

<sup>9</sup> Interview with Rupden Sherpa, Accountant of Rammam Hydro Power Project, May 7,2018.

the that his encroached land was an agriculture based where he had an orchard of oranges and grow many vegetables which was his source of income. But the power project has causes much more environmental degradation as there was no such productivity and ecological imbalance.

**Chart 1- Chart Shows People Response Toward the Establishment of Rammam Hydroelectric Power Project**

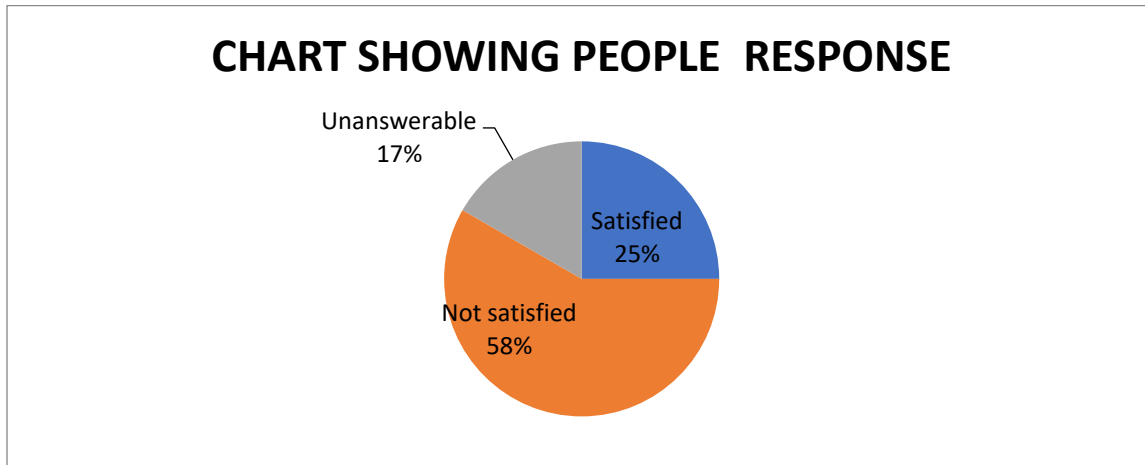


Chart-2 shows the people’s response toward the establishment of Rammam Hydroelectric Power Project. From the given chart it can be laid down that the ratio of non-satisfied people were greater than the satisfied one. During the survey it was found that about 58% of people were not satisfied with the establishment of power project as it led to the loss of land as well as environmental degradation. Only 25% of the total people were satisfied whereas 17% of the people were not answerable.

**Chart 2- Chart Shows People Response on Effects on Environment Caused by Rammam Hydroelectric Power Project**

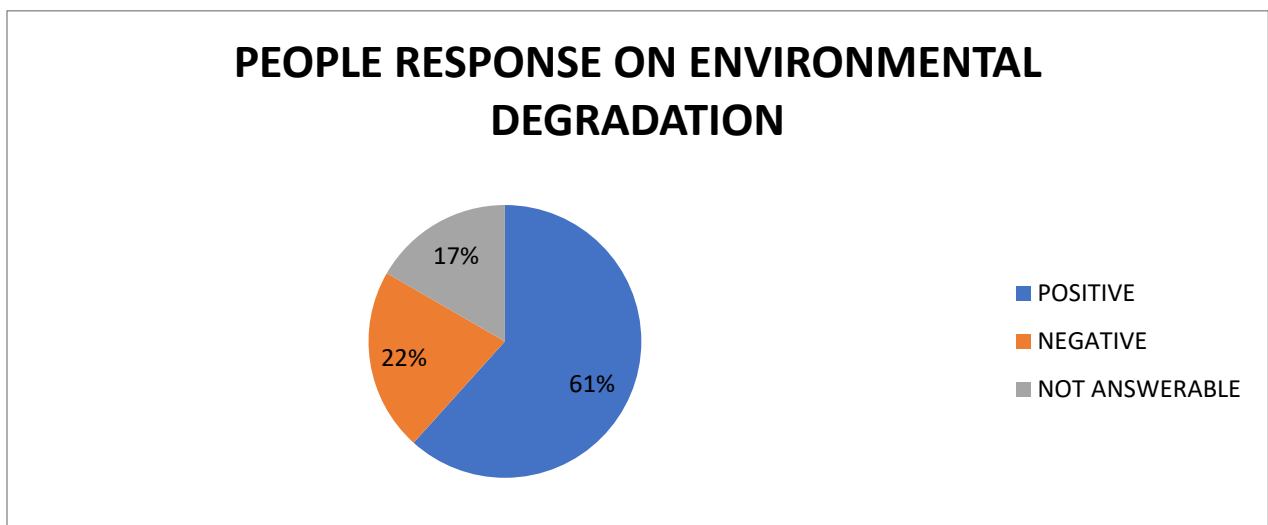
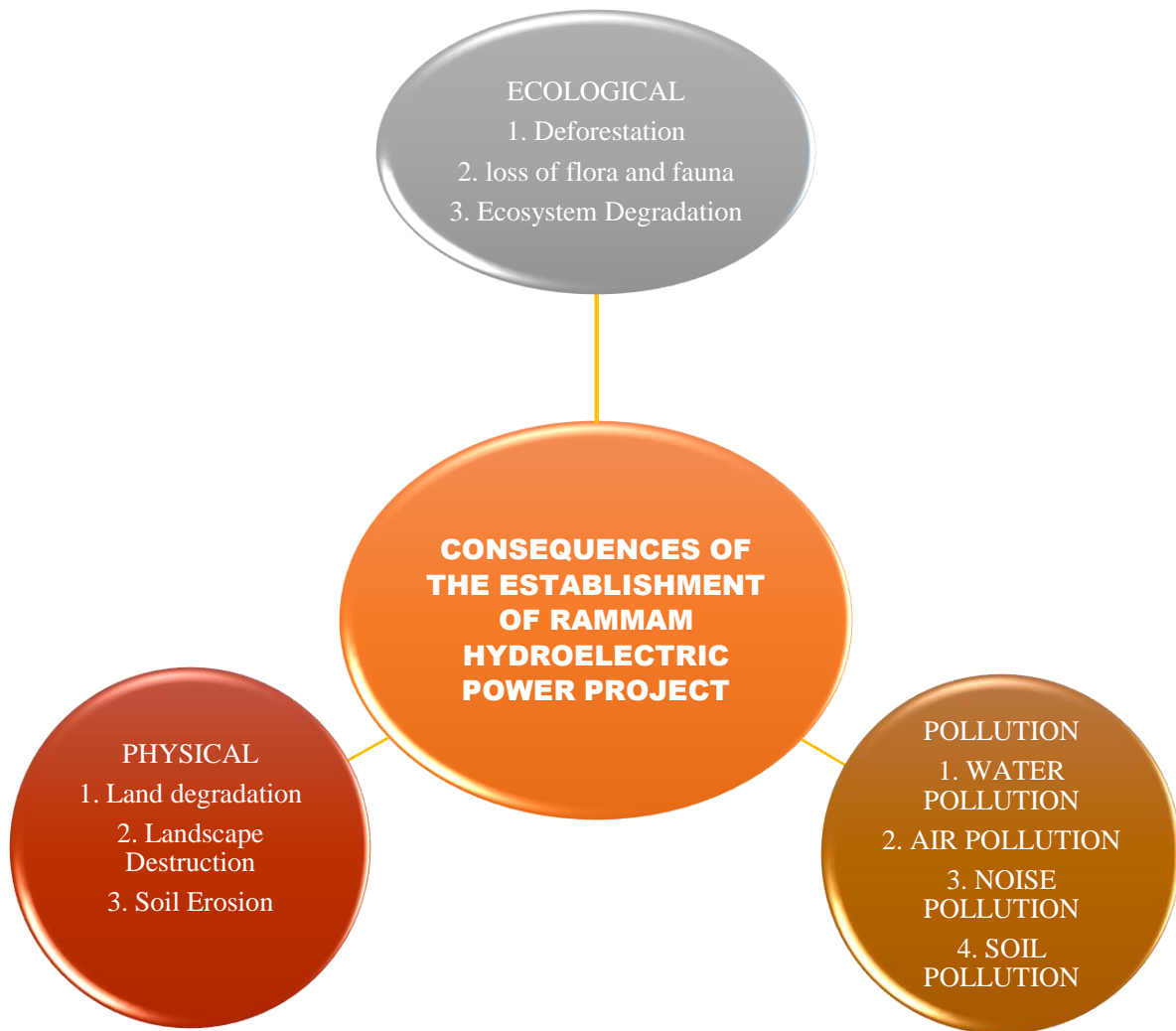


Chart- 2 shows that 61% of the people showed positive response when people were asked about the environmental degradation i.e., 61% of people agreed that establishment of hydro project caused environmental degradation. Whereas 22% of people showed negative response and 17% of people were not answerable.

**Chart 3-Chart shows consequences of the establishment of Rammam Hydro-electric Power Project, Darjeeling.**





## **Findings Of the Field Study**

1. It has been found that the construction of Rammam Hydro-electric power project has some positive impact in the area. It has contributed in the socio- economic growth of the people, living in and around the area of Ramman by providing means of earnings to them, supply of electricity and better road conditions are maintained.
2. However, the establishment of the project has caused a major environmental problem in the area. The major impact can be seen on the flora and fauna of the area.
3. Ramman area comes under the sub-Himalayan area which is earthquake prone area. Aftermath of construction of project in the area it has been found that the people in the area are experiencing frequent earthquakes.
4. Landslides are another issue that people have to face. Due to constant blasting for construction of project in the area, the topography has become weak and people has to suffer the issue of landslides in the area.
5. Constant blasting in the area also caused the death of large number of life stocks in the area.
6. It has been also found that the construction of project has affected the agriculture in the area. Construction of dams has caused shortage in water supply for irrigation.
7. During the field survey it is also found that people whose land was taken for construction of project was not fairly compensated for their land. Some people were promised for jobs and rehabilitation which was half fulfilled.
8. It has been found that mass deforestation has caused for the construction of project causing effect on ecosystem of the area. Which has also caused harm to wildlife habitat.

## **Measures Taken by The State in Protecting Environment Degradation**

The Constitution under Part IVA (Art 51A) casts a duty on every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures. Further, the Constitution of India under Part IV (Art 48A) stipulates that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.<sup>10</sup>

Under the Constitutional framework laid for the protection of environment several measures were taken by the State Government of West Bengal in controlling environmental hazards. Therefore, the Department of Environment, Government of West Bengal and the West Bengal

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<sup>10</sup>Environmental Laws in India, available at <http://www.mondaq.com/india> (Visited on 10 May 2018).

Pollution Control Board are relentlessly working to protect and safeguard the environmental condition of the State with active support from the line departments of the State Government, NGOs and various other stakeholders. In order to facilitate environmental planning and policy formulation, a need was felt for a document that will provide all relevant information about the current state of our environment. It is with this objective that the West Bengal Pollution Control Board decided to prepare the State of Environment Report-West Bengal (2016) incorporating almost all related aspects of environment. <sup>11</sup>

The state has also taken a major initiative in making a proper EIA Report during the establishment of any project which is considered to be as the most important factors for the protection of environmental degradation and socio-economic status of the people. Therefore, an EIA is based on an interdisciplinary process intended to inform the public and decision makers of likely consequences of a proposed action in order to avoid or mitigate environmental degradation. The proposed action is brought to the public for input and experts evaluate potential risks and provide an assessment to the public and decision makers. A decision is then made about whether to move forward and what mitigating measures to adopt. EIAs have flaws, but are such a useful tool that no country that has adopted an EIA framework has since repealed it.

The judiciary has also played a major role in matters related to the enforcement of environmental laws. While this has had a salutary impact, it has also brought into focus the weaknesses in the executive. Quite clearly, while our environmental laws have been progressive, implementation by government agencies has left much to be desired. The institutional structures in their current form are inadequate for responding to the emerging environmental challenges, including river cleaning, management of wastes, hazardous substance and plastics management, dealing with chemical contamination, monitoring compliance with environmental clearances, etc. There is no suitable authority to comprehensively and effectively implement the Environment (Protection) Act 1986. While the number and complexity of the projects received for environmental clearance by Ministry of Environment & Forests (MoEF) has increased several fold in recent years, its capacity has remained limited. The Ministry's role in framing legislation, policy making, framing of Acts, making of Rules, coordination with the State Governments and with various environmental bodies, will continue along with inter-sectoral and inter-ministerial coordination and Parliamentary matters. The Ministry will also head and oversee the international negotiations

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<sup>11</sup>State of Environment Report West Bengal 2016, available at [www.wbpcb.gov.in](http://www.wbpcb.gov.in) (Visited on 10 may 2018).

under its charge. In addition, the Ministry shall also be executing schemes like the Centrally Sponsored Schemes for river cleaning, establishment of Common Effluent Treatment Plants (CETPs) and Treatment Storage and Disposal Facility (TSDFs) and R&D in Clean Technology. As per the survey conducted in the Rammam hydroelectric power project- Darjeeling. the researcher found many shortcomings of the state government in protecting the environment. No special measures were taken by the state and the power project for the welfare of the common people. As per the interview conducted to Dr. P.C Rai Age- 68 who was the president of Jan Kalyan Manch of Lodhuma, has showed his grievances regarding the state action in projecting environmental degradation. As per his experience various problem relating environment has been faced by the people of Rammam after the establishment of the hydroelectric power project as the land are being degrading day by day as there is a vast area were forest which were destroyed and causes many problems in the life of the common people as the power project causes various effect on animal husbandry, forest, flora, fauna and causes landslides in the monsoon season.<sup>12</sup>

### **Conclusion**

The Darjeeling hill is endowed with a wide range of plants and in fact is one of the centres of origin of certain important agricultural and economic plants. Exotic plants like rhododendron, wild rose, conifers, rare herbs and food crops should be genetically upgraded to meet the requirement of food. As the prosperity of a nation is detained by its capacity to utilize and conserve its resources it is therefore, necessary to undertake suitable steps based on the physical and biological environment to formulate plan for sustainable development of biological resources of Darjeeling hill areas. The varieties of wild animals and birds have threatened and some are extinct due to implementation of different development projects, such as construction of roads, construction of hydroelectric projects, township, community halls, tourism projects etc. Excessive encroachment of forest land to meet the mushrooming electricity demand in the contemporary world and other requirements has led to unprecedented damage to forest, livestock grazing more often in this fragile environment has led to overgrazing leading to create barren land.

Today, our country is riddled with a number of environmental concerns which have only aggravated in the last few decades. It is high time we tackle these issues head on as turning a blind eye is no solution. Even as in India races ahead to join the league of top economies

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<sup>12</sup> Interview with P.C Rai, President of Jan Kalyan Manch of Lodhuma, May 6, 2018.

internationally it must stick to the growth path that is environmentally sustainable. Neglecting the environment can create havoc and the damage done may become irreparable. Therefore, it is important that cautious step be taken in matter related to environment.

As the earth's natural resources are rapidly dwindling and our environment is being increasingly degraded by human activities, it is evident that something needs to be done. We often feel that managing all this is something that the government should do. But if we continue to endanger our environment, there is no way by which the government can perform all these clean-up functions. It is the prevention of environmental degradation that must become a part of all our lives. Just as for any disease, prevention is better than cure, protecting our environment is economically more viable than cleaning it up once it is damaged. Individually, we can play a major role in environment management. We can reduce wastage of natural resources and we can act as watchdogs that inform the Government about sources that lead to pollution and degradation of the environment.

This can only be made possible through public awareness. Mass media such as newspapers, radio and television strongly influence public opinion. However, someone has to bring out about these issues. If each of us feels strongly about the environment, the press and media will add to our efforts. Each one of us is responsible for spreading this message to as many people as possible. There are several Government and Non- Government Organisations (NGOs) working towards environmental protection in our country. They have created a growing interest in environmental protection and conservation of nature and natural resources.

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