ORIGINAL RESEARCH PAPER

Economics

The Indira Gandhi Canal: Economic Blessing or Ecological Curse for Thar

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ABSTRACT

For an economist Indira Gandhi Canal is the lifeline of the desert which transformed the socio-economic cinereous here the crop production is steadily increasing in addition, the establishment of industries has also started. At the same time ecological implications of the canal are adverse. It created new wetland which is result of excessive irrigation. This paper deals with the effect of IGCP on biodiversity. Those species which was well adapted to dry and harsh climatic conditions are gradually vanished from the region. The paper highlights the economic and ecological implications of Indira Gandhi Canal. This paper reviews the fauna and flora of his region and impact of Indira Gandhi Canal on biodiversity and economy of Thar Desert.

Introduction

Indira Gandhi Canal is the largest canal of India. It starts from the Harike, a few kilometres below the confluence of the Satluj and Beas. This canal consist of the Rajasthan feeder canal with the first 167 km. in Punjab and Haryana and further 37 km. in Rajasthan followed by 445 km. of the Rajasthan main canal. In Rajasthan canal serve Barmer, Bikaner, Churu, Hanumangarh, Jaisalmer, Jodhpur and Sriganganagar districts. Basically, this area covered by such a big canal is desert one, with high temperature and low precipitation that's why this canal is not less than a boon for the people of the region.

The Thar is one of the most heavily populated desert areas of the world and due to its climatic conditions the economical opportunities for the peoples of this region are limited. Agriculture is not a dependable proportion of this area because after the rainy season, at least one third of crops fail. Animal husbandry, trees, is most viable model for arid and drought-prone regions. The major crops of this region are Bajara, Pulses, Jowar, and Groundnuts etc. economy of this region revolve around livestock cows, buffalos, sheep, goat, camels etc. are major cattles. Economy of this region revolves around livestock. After Indira Gandhi canal production of crops is increasing and crop diversity also increased, which lead to establishment of industries.

The Thar is an important ecological region of India 23 species of lizard and 25 species of snakes are found here and several of them are endemic to this region apart from this the Thar is haven for more than 100 species of birds among them migratory and resident both exist. But this biodiversity is badly affected due to Indira Gandhi Canal. This paper discuss about these economic and ecological implications of canal.

Study Area

Study area is Thar Desert which is situated in west of Rajasthan. It cover seven districts of Rajasthan total area covered by this desert is 320000 km which is 10% of the total geographic area of India.

Methodology

This study has been primarily based on secondary data obtained from various books and internet.

Socio-economic development of Thar and Indira Gandhi canal:-

Rajasthan is one of the developing states of India. Its average per capita income in 1991-92 was 1717 INR far below from national average of 2250 INR. Rajasthan's economy is based on agriculture and mainly on animal husbandry. Its 50% net domestic production in 1988-89 was from agriculture and 69% work force was involved in agricultural activities but a large part of Rajasthan is arid that's why agricultural development of the region is low.

Rajasthan is divided into two agro climatic regions: in east of aravali and in west of aravali. The western region is arid and it is the region of Indira Gandhi Canal. In this region livestock density is very high but crop production and productivity both are low and that too vary from year to year.

After Indira Gandhi Canal agricultural production increased sharply. In 1956, at the time of end of first five year plan, only 12.7% of gross cropped area in the state was irrigated. By 1990 the end of seventh five year plan the proportion had increased to 24.9% due to Indira Gandhi Canal. At the same time Rajasthan introduced HYV (high yield Varity) seeds for the development of agriculture, apart from this, Rajasthan also invested in agricultural infrastructure, marketing, increased credit, improved research capability, and increased input supplies. All these efforts led to a growth in agricultural output of 4.68% during 1980-91. It shows that Indira Gandhi Canal has provided base for economic development of arid Rajasthan.

The major socio-economic effects of Indira Gandhi Canal project are: (1) the canal solved the problem of drinking water for this region. (2) now farmers need not to wait for monsoon to grow the crop they can do it with the help of canal water but at the same time it is matter of debate wither it brought good fortune or misfortune as excessive use of water became cause of water logging and other ecological problems. (3) As economy of region is flourishing the population of the region also started increasing which itself is an indicator of the development in the region. (4) Improvement in living standard of people which leads to social revolution such as increase in literacy rate. (5) Increase in heterogeneity of population, enhanced inters and intra community interaction and quicker diffusion and adaptation of technology of irrigated faring.

Biodiversity of Thar and Indira Gandhi Canal:-

Ecology of any region is sum of the interactions between both biotic and abiotic processes of that region. Desert, due to its unique physical conditions support a special kind of fauna and flora. The Thar Desert is a significant ecological region of India; due to its unique physical conditions it plays an important role in biodiversity. This is the region where 23 species of lizard and more than 23 species of snakes are found and many of them are endemic to this region, more than 141 migratory and resident birds are found in this region. The Great Indian Desert is home for the thorny forest in India. This thorny forest is represented by Acacia, Prosopes, Zizyphus association and about 15 species from the main vegetation cover. Fanatically, the Thar Desert is endowed with more than 45000 species including 619 species vertebrates at least 11 of them are endemic to this area.

Change in ecosystem of Thar is taking place over time. Government schemes have made significant contribution in this transformation. Indira Gandhi Project is important in these schemes. The effect of this project is not limited to the economy only, but it has also influenced the ecosystem at a large level. Due to the Indira Gandhi Canal, the physical condition of Thar has changed at large scale which ultimately results into disturbance of biodiversity of the region. Thus the steps taken to improve the economic condition have become the cause of ecological destruction.

The xeric biodiversity of the region is under threat; some species are at the point of extinction. As many as 153 species of plants have disappeared from the irrigated region. The worst effect of water logging, saltation, and underground water imbalance can be seen in (Ganganagar, Hanumangarh, and Bikaner) districts these regions where irrigation is being practiced few decades earlier than other parts of Thar Desert. About 21% of flora has changed in the Sriganganagar district, where irrigation is being practiced for past two decades. This data reveals that floral composition of this region is changing and hence, also the faunal composition. As many as 22 bird species reported in the 19th century by two British naturalists have vanished from the region but at the same time no. of water loving birds are increasing. Some species which established adaptation with changed circumstances they survive few other extinct. To conserve xeric avifauna in the Thar continuous ecological monitoring of desert is necessary.

Potential remedial measures to conserve biodiversity:-

Major threat to biodiversity is water logging and salinization and following are methods of diagnosing these problem.

(1) Reducing groundwater recharge and this could be done by reducing irrigation water supply and reducing seepage from channels.

(2) By using natural abstraction system or artificial drainage we can increase ground water abstraction.

(3) By increasing use of trees to transpire groundwater.

Conclusion

Economic development and environmental problems are two aspects of the same coin. From the agricultural revolution to industrial revolution, this problem has been exposed in every period. This is also seen in Indira Gandhi Canal Project. This Project was started to solve the problems of people in desert region. These problems were: low agricultural production due to water scarcity, low industrialization, scarcity of drinking water and frequently occurring drought. This project is successful in addressing all financial and social problems to a great extant but simultaneously ecological problems have increased. Among all affected areas biodiversity of this region is worst effected and this area needed to be addressed and lot of research is required to solve the problem of water logging, imbalance in underground water level.

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