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Irrigation Projects causing Displacing Farmers

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ABSTRACT

Numerous developing countries have large-scale irrigation dams on their political agendas, with the goal of improving local food production and strengthening food security. Various multilateral financial agencies and countries have backed new irrigation projects around the world. These projects, on the other hand, rarely include a thorough sustainability assessment that considers not only economic variables but also potential environmental and social repercussions as well as mitigation methods. Dams and reservoirs do, in fact, give an economic and social advantage that greatly aids in the management of water, which is rapidly becoming a scarce resource.Aside from that, these dams and reservoirs could have negative environmental and socioeconomic consequences. The displacement of indigenous people is the most difficult social impact of dams. This is one of the most serious consequences of the dam building on communities, individuals, and entire families who have been forced to abandon their homes and relocate. As a result, extensive and precise assessments of the socio-economic repercussions are likely to become more in demand.

Keywords: water use; irrigation efficiency; remote sensing; emerging technologies; surface irrigation.

INTRODUCTION

The displacement of indigenous people is the most difficult social impact of the project. The displacement of native people has resulted in a slew of social issues, including disruption of family relationships, poor drinking water facilities, an absence of infrastructure amenities, a shortages of educational, healthcare, road as well as transportation, but also electrical

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facilities, a lack of public toilets, a lack of market centers, and a lack of water for irrigation. The remuneration for the disturbed people is paid, but the facilities are inadequate. In certain areas, the afflicted populace has provided infertile grounds, lowering their level of living.(Sapkale, 2017)

In India, irrigation is the largest consumer of fresh water and accounts for more than 90% of groundwater withdrawal. Water supplies are under increased strain as a result of rising population and food security. The country has reached a stage where water demand from different sectors of the economy is quickly expanding but fresh water availability remains stable. Increased salinity, nutrient pollution, and the destruction and loss of flood plains and wetlands are all consequences of excessive water consumption. India is experiencing a prolonged water deficit as a result of its weak water resource management system as well as climate change.(Reedy, 2017)

Due to government interventions at different levels, India's net irrigated area (percentage) has expanded from almost 18 to 48 percent in recent years (Fig. 1). Although the government has placed a high priority on upgrading the canal system in previous five-year plans, it has deteriorated over time (Fig. 1). Groundwater irrigation has been found as a reliable and credible source of irrigation. Since 1965, groundwater irrigation has advanced by leaps and bounds.(Shaw & Saharan, 2018)

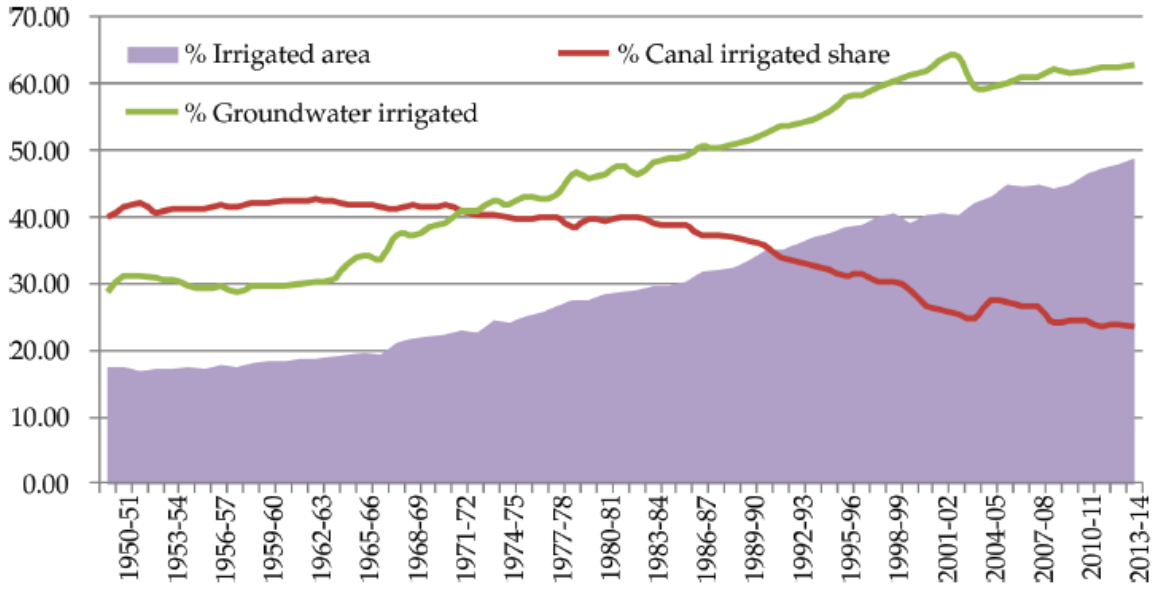

Figure 1: Irrigation trends since 1950-51 to 2013-14

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Development of Irrigation Projects

India experiences high variability of rainfall in terms of both time and space. Deficient rainfall in many parts of India has caused meteorological droughts, which in turn trigger hydrological and consequential agricultural droughts. Besides affecting rural employment, causing displacement of landless and bovine populations, degradation of surface water and groundwater, malnutrition, and regional economic downturn, droughts also affect food production and food security. The country experienced some of the severest droughts in 1877, 1899, 1918, 1965, 1972, 1979, and 1987. In a study conducted during 1975–1982, 725 taluks in 325 blocks of 99 districts, covering 108mha, were deemed drought-prone by the CWC. At present, parts of some 182 districts are considered drought-prone.(Manikowski & Strapasson, 2016)

The Government of India has initiated both short and long-term programs to mitigate droughts. The strategy adopted to address the immediate distress of human and bovine population includes digging ponds, constructing water harvesting structures and community buildings, increasing the supply of food grains and fodder, creation of fodder banks, providing mobile drinking water facilities, immediate employment to workers, shelter for cattle, crop management, and supply of subsidized seeds, fertilizers, and fuel. Presently, the government is focusing on drought mitigation through the National Rural Employment Guarantee Scheme (NREGS), which inter-alia also covers water harvesting, minor irrigation, repair, rehabilitation and renovation of traditional water bodies, drainage in waterlogged areas, afforestation, and tree plantation.(Terminski, 2013)

A number of long-term drought mitigation measures have been initiated by various central and state ministries, some of which are:(Moore et al., 2003)

- Integrated Drought Prone Area Program for drought proofing which comprises the restoration of ecological balance, optimum use of natural resources, soil moisture balance, water harvesting, afforestation, farm forestry, development of pasture and fodder, and promotion of horticulture;
- Desert Development Program for control of desertification, restoration of water balance and raising regional production, income and employment, grassland

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Volume:3 Issue:3
September 2021
Impact Factor: 5.2
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development, sand dune stabilization, water harvesting structures, and shelter belt plantation;

- Rainwater harvesting and water shed management programs in rain-fed areas are being run successfully by a number of ministries and have helped in increasing runoff of small streams and nallahs as well as promoting rural development on a large scale. Integrated watershed development is being promoted through soil conservation, check dams, nallah bunding, contour bunds, and gully plugs. Many states have reported success stories. In urban areas, rooftop rainwater harvesting is being encouraged through regulations.

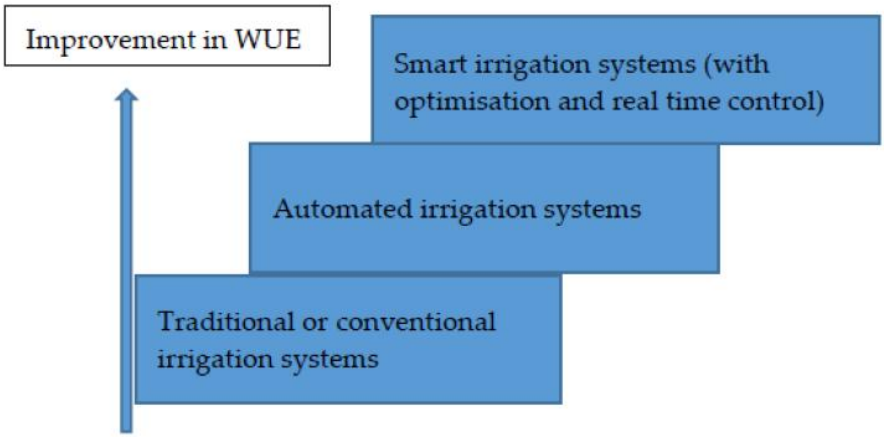

Figure 2: advances in irrigation facilities

Tank irrigation is prevalent in southern parts of India on a large scale. Replenishing groundwater through artificial recharge and water conservation measures also helps mitigate droughts in semi-arid and arid regions. Water conservation technologies such as selection of water saving cropping pattern suitable to soil and climatic conditions, deficit irrigation, use of micro (pressure) irrigation, and conjunctive use of surface water and groundwater are being promoted.(Jaysawal & Saha, 2015)

Displacement due to Irrigation Projects

The submergence of large tracts of land due to the creation of dams causes not only large-scale displacement of people from their homes and environment but also deprives them of their livelihoods, thus giving rise to several sociological and psychological concerns. While such displacement is often unavoidable, the lack of relevant policies in the early 1960s and

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1970s enhanced the stress of project affected families (PAFs), when almost one-third of the compensation for land acquired was meted out without any policy on resettlement or assured livelihood in the post-project period.(Guo et al., 2016)

Taking into account the growing concerns and increasing number of court cases on R&R issues, the Ministry of Irrigation (now MOWR) issued directives to all state governments in 1982 to implement Resettlement and Rehabilitation (R&R) packages pertaining to state irrigation projects. A draft National Resettlement Policy was prepared in 1998 to overcome the existing shortcomings in the implementation of the R&R programs.(Kaur, 2017) Based on the principle that R&R is the joint responsibility of central and state governments and project authorities, it has been ensured that the cost of all R&R components will be included within the project cost. The broad objectives of this policy are: (i) minimum displacement by exploring and disclosing non displacement and less-displacement options; (ii) higher income and better standard of living for project-affected people (PAP); (iii) minimizing trauma due to loss of livelihood systems, productive assets, and income sources; (iv) pre-project planning, mutualunderstanding between project authorities and PAP, right to information, transparency, and stakeholder meetings as part of the package.(Li & Ma, 2014)

As a consequence of the policy, there has been a marked change in the overall perspective on R&R issues. Though PAFs still face inconvenience during short periods, the provision on resettling PAP in the command areas, as per the R&R plan of the project, makes them part of the project beneficiaries and they gain both socially and economically. The provisions of this draft policy have thus ushered in an era of institutionalizing R&R plans. On the other hand, this has led to an increase in project costs, causing many private investors to shy away from developing irrigation infrastructure projects, on account of likely risks due to R&R.(Pena et al., 2017)

LITERATURE REVIEW

(Koech, 2018)The demand for fresh water is rising, and Australia's irrigation industry is preparing for a future with less water. Irrigation absorbs the majority of the water extracted from diverse sources, therefore efficiency in its use is critical. The progress achieved toward increasing irrigation water use efficiency (WUE) was evaluated in this report, with an emphasis on irrigation in Australia but with some instances from other nations. The

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Impact Factor: 5.2
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difficulties that have been met, as well as the possibilities that have become available, are also explored. Advances in irrigation infrastructure through modernization and automation have resulted in water savings, according to the study.To improve WUE, more distant sensing techniques, wireless communication systems, and more adaptable sensors are anticipated to be used in the future. Water saved as a result of efficient technology is frequently repurposed to increase the area of land under irrigation, leading to a net increase in overall water consumption at the basin scale. Water-efficient technology and practises must therefore be used in conjunction with other measures such as conservation programs as well as suitable regulations that limit water allocation and consumption to achieve net water savings.Engineering and technology improvements, advancements in plant and pasture science, environmental conditions, as well as socio-economic considerations are all elements that influence irrigation WUE trends. Lack of public support, particularly when the methods utilized are not cost-effective, and irrigations' reluctance to accept new technology are two challenges that may be addressed.

(Feldes, 2017) Large dams and their social consequences have been subject to extensive debate in recent decades. In India, the National River Linking Project (NRLP), which is the world's largest water project in the making and involves the construction of several dams, has been at the centre of this debate. The 168- billion- dollar project is designed to connect the majority of Indian rivers to a gigantic water grid. Historical- ly, large scale water infrastructure in the subcontinent has been discursively linked to imaginaries of development and national progress, as underlined by Nehru's famous quote proclaiming large dams as 'the temples of modern India'. However, these imaginaries clash with the experiences of those affected by the construction of dams: not only are the displaced communities among the most marginalized in Indian society, but they also benefit the least and suffer the most from such projects. This article begins by exploring the degree to which such imaginaries continue to be prominent in contemporary political discourse, by undertaking an analysis of the media coverage received by the Polavaram Project, i.e. the first project implemented under the NRLP scheme.

(Huang et al., 2017)Dam construction is invariably followed by large-scale displacement and resettlement, resulting in complex socioeconomic consequences for the host community. The goal of this study is to look into the social effects of dam-induced displacement and

ISSN: 2320-3714
Volume:3 Issue:3
September 2021
Impact Factor: 5.2
Subject: Agriculture

resettlement in China using a comparative case study that looked at both the control and experimental groups. Data was gathered using a combination of questionnaires, archival files, and in-person interviews.The findings demonstrate that dam-induced displacement and resettlement aided in improving living conditions and promoting rural cooperative medical insurance adoption. However, it had a negative effect on economic growth, income level as well as income resource, as well as overall happiness. In the end, there are implications for theory and practice.

(Levidow et al., 2014)Irrigation strategies that are innovative can improve water efficiency and reduce environmental impacts at the same time. In other circumstances, extension services have offered the essential information, assisting farmers in adapting and implementing viable solutions, allowing them to reap greater benefits from irrigation technology. Investing in technology advancements has frequently resulted in increasing water prices, but without realizing the full potential benefits of water efficiency.Farmers typically lack the resources and incentives to understand crop water consumption, real irrigation applications, crop yield responses to various water management strategies, and consequently existing on-farm water efficiency levels. Our two case studies evaluating choices, incentives, and challenges to promote water-efficient behaviours show these common concerns. Both regions have strong incentives for improvement, but they lack a knowledge-sharing mechanism to assist farmers and resource managers in identifying areas where improvements might be made.Partly as a result, farmers' responsibility for sustainable water management has been delegated to hypothetical scenarios, such as additional supplies from processed wastewater reuse or long-term cheap water pricing. In both circumstances, the default assumption that farmers' irrigation practises are already water-efficient is supplemented by a shifted obligation. Under the current conditions, agricultural water management will maintain an unknown level of water efficiency, and farmers will be less motivated to pursue more efficient practises. For all essential stakeholders to share increased responsibility across the whole water supply chain, ongoing knowledge exchange is required.

(Eguavoen & Tesfai, 2012)The Koga project is the very first new large-scale irrigation project in the Blue Nile river basin since before the 1970s, and it may provide as an illustration of the substantial changes in landscape as well as lifestyle that are preceding Ethiopia's current water projects. The hazards of impoverishment associated with the

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development-induced displacement of households in Koga are examined in this paper. Seven of the eight impoverishment risks, particularly temporal landlessness, homeless, unemployment, social marginalisation, loss of household assets, social disarticulation, as well as food insecurity, could be detected using the Impoverishment Risk & Reconstruction model.The Koga initiative and the local municipality worked to reduce the likelihood of the relocated households becoming impoverished, focusing on the rehabilitation of material livelihood assets (land, houses and compensation). The magnitude of the project's rural-urban relocation was underestimated. If the affected households were notified about the irrigation project early enough, they were able to take proactive measures to reduce their risk of poverty.

(Gebre et al., 2008)The irrigation as well as watershed management project in the Koga River Valley is expected to boost agricultural production and productivity among smallholder farmers. The project's goal is to reduce poverty and improve food security among the targeted farming communities by doing so. The scheme, which consists of three components (irrigation, conservation, and capacity building), aims to mobilize and motivate farmers in upstream areas to participate in extensive watershed management activities so that farming communities downstream in the project command area can practise irrigation farming in a sustainable manner.

CONCLUSION

Dams provide more and sufficient benefits to the people, also impact on their economic and social well-being. Various experiences reflect that there are positive and negative impacts of dam. Dams, by providing water for irrigation purposes reduces the flood problems, huge impounded water also used for power generation. These are the major positive effects of dam but dams are also responsible for social and cultural deterioration. The serious problem occurs due to dam is resettlement of the displaced people, who have lost their ancestral property. The displacement of indigenous people is the most difficult social impact of the project. Displaced native people are facing numerous social issues following resettlement, including disruption of family relationships, poor potable water facilities, an absence of infrastructure facilities, a lack of knowledge, health care, road and transportation, electrical

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Volume:3 Issue:3
September 2021
Impact Factor: 5.2
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facilities, the absence of public restroom amenities, an inadequate market centres, and a lack of water for irrigation.

In some villages the drinking water supply is not provided. Middle and Down stream basin villages are more developed due to irrigation facilities. Occupational opportunities should be increased for the displaced population. The government should provide employment opportunities for rehabilitated people.

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