iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** IV **Month of publication:** April 2023

DOI: https://doi.org/10.22214/ijraset.2023.50975

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IV Apr 2023- Available at www.ijraset.com

Challenges & Prospects of River Interlinking in India

Er. Divyanshu Shrivastava[1], Ar. Anupam[2],
Faculty of Architecture & Planning, Dr. APJ Abdul Kalam Technical University, Lucknow, Uttar Pradesh

Abstract: ***River interlinking is a proposed scheme aimed at connecting the country's rivers to facilitate water transfer from water-rich basins to water-deficit ones.***
The project has been lauded for its potential to address the challenges of water scarcity, irrigation, and hydropower generation in India. However, it also faces significant challenges, including environmental, social, economic, and political issues that must be addressed.
This paper aims to explore the challenges and prospects of river interlinking in India. It involved a systematic review of existing literature, including policy documents, scholarly articles, and reports. The results indicate that river interlinking in India faces several challenges, such as potential ecological damage, conflicts over water sharing, and the displacement of communities.
However, the scheme also offers significant benefits such as increased water availability, flood control, and improved livelihoods.
The paper concludes that river interlinking can be a viable solution to India's water management problems if the environmental and social impacts are adequately addressed, and the project is implemented within a sustainable development framework.
Keywords: River Interlinking, Water Management, Inter-basin transfers, Sustainable Resource Planning, Inter-state water disputes, Water Security

I. INTRODUCTION

India, with its rapidly growing population and increasing demand for water resources, is facing a severe water crisis. To address this crisis, there have been proposals to interlink rivers in the country, which would involve transferring water from water-surplus areas to water-deficit areas through a network of canals, reservoirs, and pipelines.

The interlinking proposal has been the subject of intense debate and controversy in India, with proponents arguing that it can alleviate the water scarcity problem, enhance agricultural productivity, and generate hydropower, while opponents highlight the potential negative impacts on the environment, river ecosystems, and local communities.

The idea of interlinking rivers in India was first proposed in the 1970s, but it was only in the early 2000s (through National River Linking Program) that the scheme gained political momentum. NRLP involves the construction of a network of canals and dams to transfer water from surplus rivers to deficient ones. The project has been described as the world's largest irrigation scheme and has generated significant debate and controversy.

This article aims to analyse the challenges and prospects of river interlinking in India, taking into account the technical, financial, environmental, and social aspects of the project. By examining the potential benefits and drawbacks of the proposal, this article aims to provide a comprehensive analysis of the interlinking project and its implications for water resource management in India.

II. METHODOLOGY

This study utilizes a qualitative research design that involves a systematic review of existing literature on river interlinking in India. The primary source of data for this research paper is the literature available online, including policy documents, scholarly articles, and reports.

The search strategy for the literature review involved using online databases such as Google Scholar, JSTOR, and ScienceDirect. The search terms used for the literature review include "river interlinking in India," "water management in India," "water scarcity in India," "irrigation in India," and "hydropower in India."

The search was conducted using a combination of keywords and Boolean operators to ensure that the relevant literature was included in the review.

©IJRASET: All Rights are Reserved

III.LITERATURE REVIEW

A. *Timeline of River Interlinking Proposals in India*

River interlinking proposals in India have a long and complex history, dating back several decades. Here's a brief timeline of the key events and proposals:

S. No.	Year/ Decade	Description
Pre-Independence proposals		
1	1890	British engineer Arthur Cotton proposed linking the Godavari and Krishna rivers in southern India.
2	1940	Captain D.V. Gokhale proposed linking major rivers in western and central India to mitigate droughts and floods.
Post-Independence proposals		
3	1950's	Indian engineer Captain D.V. Dastur proposed a plan to link major rivers in India, including the Ganges and the Cauvery.
4	1972	The National Water Development Agency (NWDA) was established to study the feasibility of interlinking rivers in India.
5	1980s-1990s	Several proposals for river interlinking were put forward, including the Himalayan Rivers Development Plan (HRDP) and the Peninsular Rivers Development Plan (PRDP).
6	1990s	Indian scientist K.L. Rao proposed the interlinking of rivers in India as a means of addressing water scarcity and floods.
7	2002	The government of India announced the ambitious National River Linking Project (NRLP), which aimed to connect 37 major rivers in the country through a network of canals and reservoirs.
8	2005	The Supreme Court of India directed the government to implement the NRLP in a time-bound manner.
9	2008	The government announced a revised plan for the NRLP, which focused on four major links and 30 smaller links.
10	2012	The government established a task force to review the feasibility of the NRLP.
11	2014	The new government led by Prime Minister Narendra Modi announced its support for the NRLP and allocated funds for the project.
12	2014	Ken-Betwa Link Project got its cabinet approval.
13	16th September 2015	First linking of river Krishna & Godavari was completed. However, this project is still in review as it was small lift irrigation project and hence is not considered as true river interlinking.
14	2019	The government announced that work on the Ken-Betwa river interlinking project had begun, marking the first major project under the NRLP to be implemented.
15	2021	About four decades after conceptualization, India's first river interlinking project, connecting Ken River in Madhya Pradesh with Betwa in Uttar Pradesh, finally got off the drawing board.

These proposals and plans have been subject to debate and controversy, with concerns raised about the environmental and social impacts of river interlinking, as well as questions about the feasibility and cost-effectiveness of the projects.

B. *Review of National River Linking Project*

The National River Linking Project (NRLP) is a massive infrastructure project that aims to connect India's major rivers through a network of canals and reservoirs. The project was first proposed in 2002 by the Indian government as a means of addressing water scarcity and floods in the country. The NRLP has been the subject of much debate and controversy, with some experts and activists arguing that it could have serious environmental and social impacts.

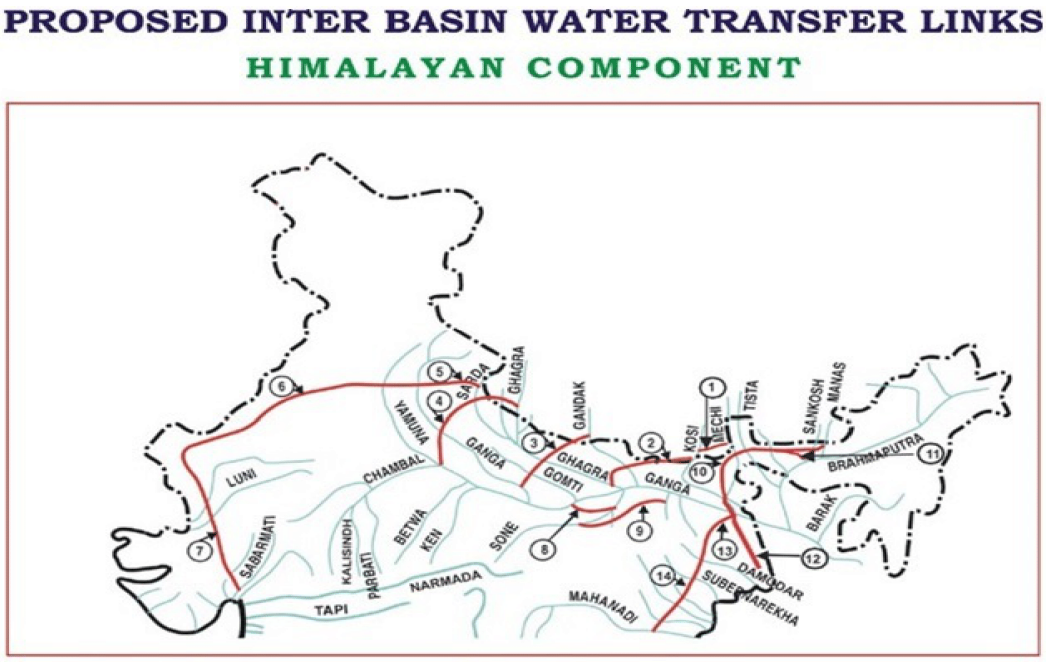
©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

It is divided into two main components: the Himalayan Rivers Development Component and the Peninsular Rivers Development Component.

The proposed river interlinking projects under the Himalayan Rivers Development Component are:

1) Kosi-mechi Link
2) Kosi-Ghaghara Link
3) Gandak-Ganga Link
4) Ghaghara–Yamuna link
5) Sarda–Yamuna link

Figure 1 Proposed Himalayan Component under NRLP



Source 1 www.nwda.gov.in

6) Yamuna-Rajasthan Link
7) Rajasthan Sabarmati Link
8) Chunar-Sone Barrage
9) Sone Dam- Southern tributaries of Ganga
10) Manas-Sankosh-Tista-Ganga Link
11) Jogighopa-Tista-Farakka Link (Alternate)
12) Farakkha-Sunderbans Link
13) Ganga (Farakkha)-Damodar-Subernarekha Link
14) Subernarekha-Mahanadi Link

The proposed river interlinking projects under the Peninsular Rivers Development Component are divided in four major parts:

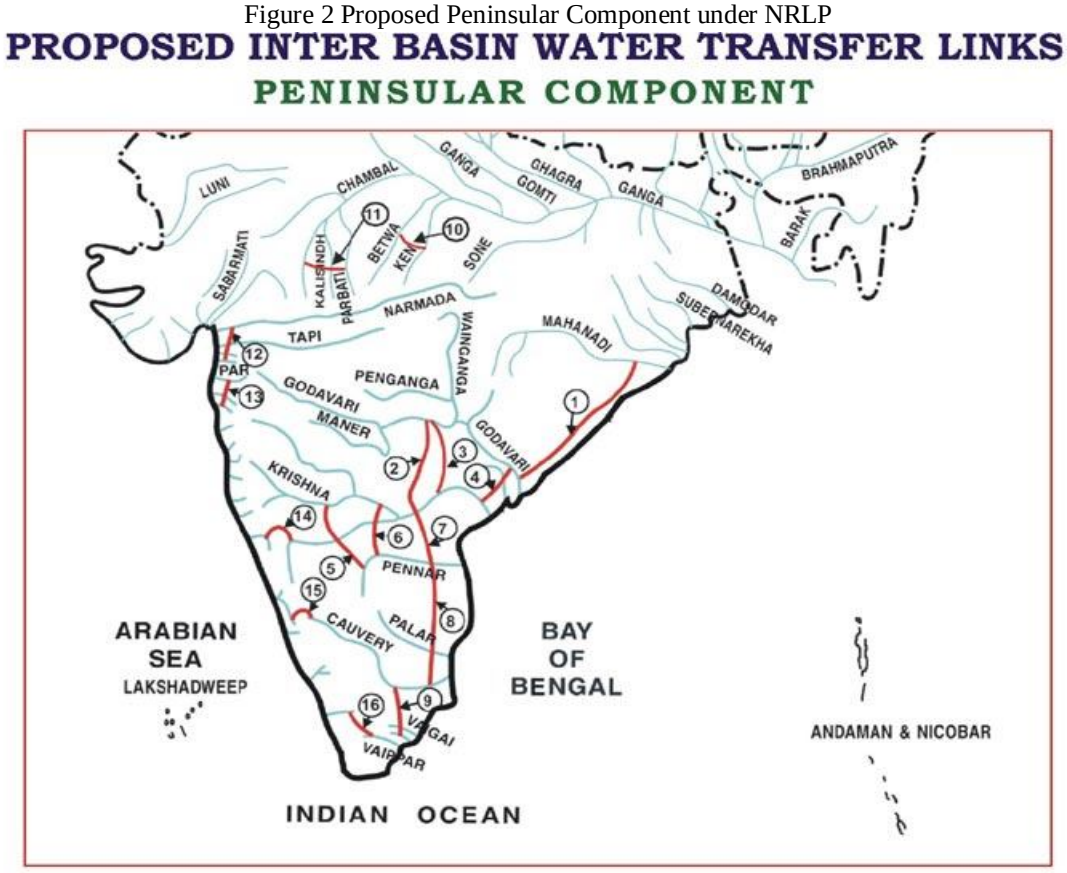
a) Interlinking of Mahanadi-Godavari-Krishna-Palar-Pennar-Kaveri,
b) Interlinking of West Flowing Rivers, North of Mumbai and South of Tapi,
c) Inter-linking of Ken with Chambal and
d) Diversion of some water from West Flowing Rivers

©IJRASET: All Rights are Reserved

These four parts have following interlinking projects:

a. Mahanadi-Godavari Link, (Part 1)
b. Godavari-Krishna (Nagarjunsagar) Link, (Part 1)
c. Godavari-Krishna (Pulichintala) Link, (Part 1)
d. Godavari-Krishna (Polavaram) Link (Part 1)
e. Krishna (Almatti) – Pennar Link (Part 1)
f. Krishna (Srisailam) – Pennar Link (Part 1)
g. Krishna (Nagarjunsagar)-Pennar Link (Part 1)
h. Pennar-Palar-Cauvery Link (Part 1)
i. Cauvery-Vaigai-Gundar Link (Part 4)
j. Ken-Betwa Link (Part 3)
k. Parbati-Kali Sindh- Chambal Link (Part 3)
l. Par-Tapi-Narmada Link (Part 2)
m. Damanganga-Pinjal Link (Part 2)
n. Bedti-Varda Link (Part 4)
o. Netravati-Hemvati Link (Part 4)
p. Pamba-Achankovil-Vaippar Link (Part 4)

Figure 2 Proposed Peninsular Component under NRLP



Source 2 www.nwda.gov.in

The NRLP would involve building thousands of kilometers of canals, hundreds of dams and reservoirs, and a vast network of tunnels and pumping stations. The cost of the project has been estimated at over Rs 5 lakh crore (approximately 70 billion USD). The project is also expected to have a significant impact on the environment, with concerns raised about the displacement of communities, loss of biodiversity, and changes to the hydrology of the affected regions.

The implementation of the NRLP has been a slow and contentious process, with several states opposing the project due to concerns about water sharing and environmental impacts. In 2012, the government established a task force to review the feasibility of the NRLP, which recommended that the project be implemented in a phased manner. In 2019, work began on the Ken-Betwa river interlinking project, which is the first major project under the NRLP to be implemented.

Overall, the NRLP represents a significant challenge for the Indian government, requiring extensive planning, funding, and coordination between various states and agencies. The success of the project will depend on a range of factors, including its environmental and social impacts, the availability of water resources, and the ability of the government to manage the project effectively.

C. Overview of existing articles for River Interlinking in India

River interlinking in India has been a topic of discussion for several decades, with proponents arguing that it can help address the country's water management challenges. However, the concept of river interlinking is not without its critics, who have raised several concerns about the environmental, social, and economic impacts of such projects.

One of the key environmental challenges associated with river interlinking is the potential disruption of the natural ecosystem. According to a study by (Rao, 2018) the construction of canals and dams for interlinking rivers can lead to the loss of wetlands, destruction of riverine habitats, and alterations in the hydrological regime. These changes can have significant ecological impacts, including the loss of biodiversity and changes in water quality.

In addition to the environmental challenges, river interlinking in India also presents several social challenges. One such challenge is the potential displacement of people living in the areas affected by the projects. According to a study by (Rangachari, 2019) the construction of canals and dams for interlinking rivers can lead to the displacement of local communities, particularly indigenous and marginalized communities. These communities often lack the necessary resources and support to cope with the changes, leading to social and economic impacts.

Finally, river interlinking in India also presents several economic challenges. One of the key challenges is the high cost of implementing such projects. According to a study by (Kumar, 2019), the estimated cost of the proposed interlinking of rivers in India is over Rs. 5 lakh crore. The high cost of the project, coupled with the uncertainty around its benefits and impacts, has led many to question its economic feasibility.

Despite the challenges associated with river interlinking in India, proponents argue that it has several potential benefits, including increased irrigation, hydropower generation, and flood control. However, the prospects for the success of river interlinking projects in India remain uncertain. According to a study by (Tiwari, 2018) the success of such projects depends on several factors, including effective planning, stakeholder participation, and environmental and social impact assessments.

IV. ANALYSIS OF RIVER INTERLINKING IN INDIA

A. Challenges of River Interlinking in India

1) Ecological Challenges

The river interlinking project could have adverse effects on the ecology of the region. The interlinking of rivers could lead to the loss of biodiversity, the degradation of wetlands and water bodies, and the alteration of the natural flow of rivers.

a) *Impact on River Ecosystems:* River interlinking involves diverting water from one river basin to another, which can significantly affect the aquatic ecosystem of the source river. It can lead to reduced water availability and a change in water quality, affecting the biodiversity and aquatic life of the river. The sudden increase in water flow can also lead to soil erosion, flooding, and loss of habitat for fish and other aquatic species.

b) *Impact on Wetlands:* Wetlands play a crucial role in maintaining the ecological balance of a river basin. However, river interlinking can cause significant damage to wetlands, which are essential for water purification, flood control, and habitat for migratory birds. The diversion of water can lead to the drying up of wetlands and loss of biodiversity.

c) *Impact on Forests:* Forests are essential for maintaining the ecological balance of river basins as they help in regulating the water cycle, soil conservation, and preventing soil erosion. However, river interlinking can lead to the displacement of people living in the forest areas, deforestation, and loss of habitat for wildlife.

d) *Impact on Agriculture:* Agriculture is a significant consumer of water in India, accounting for more than 80% of water use. River interlinking can lead to the diversion of water from agricultural areas, affecting the availability of water for irrigation. The project can also lead to soil salinization, which can reduce soil fertility and agricultural productivity.

e) *Impact on Climate Change:* River interlinking can lead to an increase in greenhouse gas emissions, which can contribute to climate change. The project involves the construction of canals, dams, and reservoirs, which require a significant amount of energy and emit greenhouse gases during construction and operation.

2) Social Challenges

River interlinking could also have social impacts, such as displacement of people, loss of livelihoods, and conflicts over water sharing. The project could also lead to the destruction of cultural sites and heritage structures.

a) *Displacement of Communities:* River interlinking involves the construction of dams, canals, and reservoirs, which can lead to the displacement of people living in the project areas. Many communities depend on rivers for their livelihoods, and the project can lead to the loss of land, homes, and traditional livelihoods. The resettlement and rehabilitation of displaced communities are complex issues that require careful planning and implementation.

b) *Inter-state Conflicts:* The proposed river interlinking project involves the transfer of water from surplus states to water-deficient states. This can lead to inter-state conflicts over the sharing of water resources, which can have serious social and political implications. The project must ensure equitable distribution of water resources and address the concerns of all stakeholders to prevent conflicts.

c) *Cost of the Project:* The river interlinking project is a massive undertaking that requires significant financial resources. The cost of construction, maintenance, and operation of the infrastructure can be enormous, and the project must ensure that it is economically feasible and sustainable in the long run. The cost of the project can also lead to social inequality as it may divert resources from other social welfare programs.

d) *Impact on Livelihoods:* River interlinking can have significant impacts on the livelihoods of communities living in the project areas. The project can lead to changes in land use, loss of biodiversity, and disruption of traditional livelihoods, leading to social and economic hardship for affected communities. The project must ensure that the benefits of the project are distributed equitably and do not lead to social inequality.

e) *Impact on Cultural Heritage:* Rivers play a crucial role in the cultural heritage of India. The proposed river interlinking project can lead to the destruction of cultural heritage sites, affecting the identity and traditions of communities living in the project areas. The project must ensure that cultural heritage sites are protected and preserved.

3) Legal Challenges

The legal framework for river interlinking is not clear. There are concerns about water rights, ownership, and sharing. The project also needs to comply with environmental laws and regulations.

a) *Constitutional Issues:* The implementation of river interlinking requires the coordination of various states, which poses a constitutional challenge. Under the Indian Constitution, water is a state subject, which means that each state has exclusive control over its water resources. Thus, implementing river interlinking requires the consent of all the states involved, and a failure to secure this consent may lead to a constitutional challenge.

b) *Environmental Concerns:* River interlinking projects have the potential to cause significant environmental damage, and thus they are subject to environmental clearance procedures under the Environmental Protection Act, 1986. The environmental clearance process involves a rigorous evaluation of the potential environmental impacts of the project and the formulation of measures to mitigate these impacts. If the clearance is not obtained, then the project may be subject to a legal challenge.

c) *Water Sharing Disputes:* Water sharing disputes are a significant challenge to the implementation of river interlinking projects. India has a history of inter-state water disputes, and any proposed river interlinking project must take into account the interests of all the states involved. This can be challenging as each state may have different water requirements, and water sharing agreements may be difficult to negotiate.

d) *Land Acquisition Issues:* The implementation of river interlinking projects requires the acquisition of land for the construction of canals and other infrastructure. The acquisition of land can be a contentious issue, particularly if the land is being acquired from farmers or other landowners. In such cases, the acquisition process may be challenged on the grounds of inadequate compensation or violation of landowner rights.

e) *Funding and Budgetary Challenges:* River interlinking projects are capital-intensive, and thus they require significant funding. The Indian government has proposed several river interlinking projects, but funding and budgetary challenges have hindered their implementation. If funding is not secured, then the project may be subject to a legal challenge.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

4) Financial Challenges

River interlinking is a massive project that requires significant financial resources. The project's cost estimates are not clear, and there is uncertainty about the funding sources.

a) *High Cost:* The interlinking of rivers project is a capital-intensive project that requires significant investment in infrastructure development, which makes it an expensive undertaking. The cost of the project has been estimated to be several lakh crore rupees, and securing funding for the project has been a challenge.

b) *Funding:* One of the main challenges of the interlinking of rivers project is securing funding. The Indian government has proposed several river interlinking projects, but funding has been a major hurdle. The government has proposed several options to fund the project, such as Public-Private Partnership (PPP) and foreign investment, but none of these options have been successful so far.

c) *Financial Viability:* The financial viability of the interlinking of rivers project is a significant challenge. The project's success depends on the availability of water, which is dependent on monsoons and other natural factors. In addition, the project's economic viability is also uncertain, and it is unclear whether the project will generate enough revenue to cover its costs.

d) *Economic Impact:* The interlinking of rivers project has the potential to have a significant impact on the economy. The project is expected to create jobs and increase economic activity in the areas where it is implemented. However, the economic impact of the project is uncertain, and it is unclear whether the project will generate enough revenue to justify its cost.

e) *Delayed Returns:* The interlinking of rivers project is a long-term investment that may take many years to generate returns. The project requires significant investment in infrastructure development, which may not generate returns for many years. This delayed return on investment may discourage investors and make it difficult to secure funding for the project.

5) Political Challenges

River interlinking is a highly politicized issue in India. There are differences among political parties and states regarding the project's implementation.

The project's success requires political will and cooperation among states.

a) *Inter-State Disputes:* The implementation of river interlinking projects in India requires the cooperation and coordination of various states. The project's success depends on the availability of water in different states, and water sharing agreements need to be negotiated to ensure that the project benefits all the states involved. This has been a significant challenge, as many Indian states have historically had inter-state water disputes that have been difficult to resolve.

b) *Opposition from State Governments:* State governments play a significant role in the implementation of river interlinking projects in India. They have control over water resources and land acquisition, which are critical components of the project. However, many state governments have opposed the project due to concerns about its impact on the environment, displacement of people, and the economic viability of the project.

c) *Political Instability:* Political instability in India is a significant challenge to the implementation of river interlinking projects. Governments change frequently, and different political parties have different priorities and agendas, which can affect the project's continuity and funding. In addition, political instability can lead to delays in decision-making and implementation, which can further hinder the project's progress.

d) *Public Opposition:* The implementation of river interlinking projects has faced opposition from various groups of people, including environmentalists, farmers, and local communities. These groups are concerned about the impact of the project on the environment, livelihoods, and the displacement of people. Public opposition can make it difficult to implement the project, and in some cases, it can lead to legal challenges.

e) *Lack of Consensus:* The implementation of river interlinking projects requires a broad consensus among various stakeholders, including state governments, political parties, and civil society groups. However, achieving consensus has been a significant challenge, as different stakeholders have different priorities, agendas, and concerns about the project. Lack of consensus can delay decision-making and implementation, which can further hinder the project's progress

B. Prospects of River Interlinking in India

The prospectus of river interlinking in India is promising, as the project has the potential to address the country's water management challenges and provide significant economic, social, and environmental benefits. Some of the key prospects of river interlinking are discussed below:

a) *Improved Water Availability:* River interlinking can help improve water availability in areas that are water-scarce, particularly in drought-prone regions. The project aims to create a network of interconnected rivers and reservoirs, which can help in the storage and distribution of water across the country. This can help in improving agricultural productivity, providing clean drinking water, and meeting the water demands of industries and other sectors.
b) *Increased Hydropower Generation:* India's hydropower potential is largely untapped, and river interlinking can help generate hydropower by creating a network of interconnected rivers and reservoirs. The project can help in increasing the country's hydropower capacity, which can help in meeting the increasing demand for electricity.
c) *Flood Control:* India is prone to floods during the monsoon season, and river interlinking can help in flood control by storing excess water in reservoirs during the monsoon season. This can help in reducing flood damage and protecting human lives and properties.
d) *Employment Generation:* The construction and maintenance of the river interlinking project can provide significant employment opportunities in both skilled and unskilled sectors. The project can also help in the development of related industries such as construction materials, engineering services, and transportation.
e) *Improved Environmental Management:* The river interlinking project can have a significant impact on the environment, including changes in biodiversity and water quality. However, if the project is implemented with proper environmental safeguards, it can help in the conservation of water resources and restoration of degraded ecosystems.
f) *Improved Inter-State Relations:* Water-sharing disputes between different states in India have historically been a significant challenge, and river interlinking can help in improving inter-state relations by creating a network of interconnected rivers and reservoirs. The project can help in promoting cooperation between different states in managing water resources and can help in resolving water-sharing disputes.

V. CONCLUSION

Despite the controversies surrounding the river interlinking project, it remains a priority for the Indian government. The scheme has been included in the government's National Water Development Plan, and the government has already invested significant resources in conducting feasibility studies and implementing pilot projects.

River interlinking has the potential to address the water scarcity issue in India. The river interlinking project in India is a complex issue that requires careful consideration and analysis. While it is important to address the issue of water scarcity in the country, any large-scale project must be evaluated in terms of its potential impact on the environment, as well as its feasibility and cost-effectiveness. It is also essential to involve all stakeholders in the decision-making process and to ensure that their concerns are addressed. Ultimately, the success of the river interlinking project will depend on a careful balancing of economic, social, and environmental considerations. The project needs to be implemented in a sustainable and responsible manner, with proper consideration of the ecological and social impacts. There is a need for a clear legal framework, adequate financial resources, and political will to implement the project successfully.

VI. ACKNOWLEDGMENT

The study did not receive any funding or specific grant from public, semi-public or non-government sectors. The author acknowledges the secondary data support of National Water Development Agency (NWDA) through its official website. Also, author declares that the content of this study has not been published anywhere else.

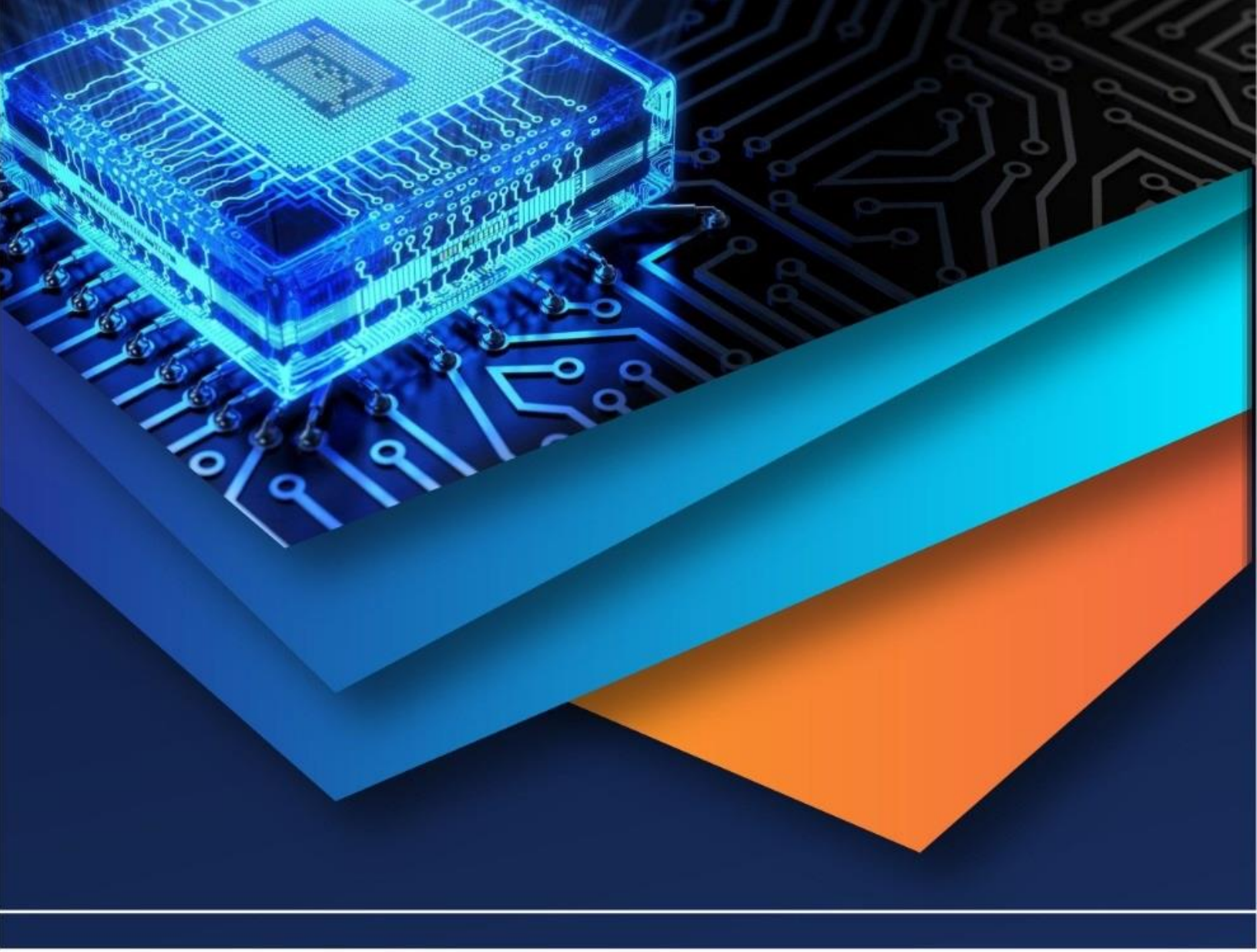
REFERENCES

[1] "Interlinking of Rivers in India: Benefits, Problems and Prospects" by Manoranjan Mohanty, Economic and Political Weekly, Vol. 45, No. 40 (Oct. 2-8, 2010), pp. 19-23.
[2] "Interlinking of Rivers in India: A Critique" by K J Joy and Suhas Paranjape, Economic and Political Weekly, Vol. 40, No. 36 (Sep. 3-9, 2005), pp. 3917-3926.
[3] "River Interlinking in India: Issues and Challenges" by Partha Sarathi Dasgupta and N.C. Narayanan, Indian Journal of Agricultural Economics, Vol. 72, No. 3 (Jul.-Sep., 2017), pp. 358-372.
[4] "Interlinking of Rivers in India: Environmental and Social Implications" by K.S. Kavi Kumar, Journal of Environmental Management, Vol. 90, No. 1 (Jan., 2009), pp. 291-300.
[5] "River Linking: Need and Challenges" by R.K. Gupta, A. K. Sharma, R.C. Sharma, and A.K. Gupta, Journal of Soil and Water Conservation, Vol. 12, No. 1 (Jan.-Mar., 2013), pp. 39-47.
[6] "River Interlinking in India: Prospects and Challenges" by Pradeep Kumar Dash and Sanjukta Mahapatra, International Journal of Scientific Research and Management, Vol. 4, No. 5 (May, 2016), pp. 3995-4003.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

[7] "Interlinking of Rivers in India: A Critique of the Proposal from a Legal Perspective" by Sairam Bhat and S. Suresh, Economic and Political Weekly, Vol. 41, No. 19 (May 13-19, 2006), pp. 1857-1860.
[8] "The Politics of River Linking in India" by Rishika Singh and K.S. Kavi Kumar, Journal of Contemporary Asia, Vol. 45, No. 4 (2015), pp. 656-678.
[9] "Interlinking of Rivers in India: Challenges and Opportunities" by Alok Kumar Rai, Research Journal of Agriculture and Forestry Sciences, Vol. 3, No. 6 (Jun., 2015), pp. 1-9.
[10] "River Interlinking in India: An Overview" by N. Panchapakesan, Journal of Water Resources and Ocean Science, Vol. 3, No. 2 (Apr., 2014), pp. 18-22.
[11] "River Interlinking in India: Issues and Challenges" by Pawanjeet Kumar, Alok Kumar and Prem K. Sundaram,Published October 12, 2020
[12] Kumar, S. &. (2019). Interlinking of Rivers in India: An Appraisal. Journal of Social and Economic Development, 21(2),, 309-320.
[13] Rangachari, U. (2019). Interlinking Rivers in India: Issues, Challenges and Alternatives. Economic and Political Weekly, 54(34), 40-48.
[14] Rao, K. V. (2018). River Interlinking in India: Environmental and Social Implications in River Basins and Sustainable Water Developmen. Springer, Cham., 163-183.
[15] Tiwari, R. &. (2018). Interlinking of rivers in India: a review of challenges and prospects. Environmental Science and Pollution Research, 25(24), 23801-23815.
[16] Mohanty, M. (2010, October 02-08). Interlinking of Rivers in India: Benefits, Problems and Prospects. Economic and Political Weekly Volume 45, pp. 19-23.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)