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## Managing Climate Change through Water Management

\*<sup>1</sup>Dr. Anil Singh\*<sup>1</sup>Research Scholar, LL.D, DSNLU, Visakhapatnam, AP and Associate Professor, Bhaskar Law College, Hyderabad, Telangana, India.

### Abstract

Environmental changes affect us all, especially the poorest people who are most vulnerable to food and water scarcity, and impacts of climate change. Putting ecosystems at the centre of development planning and managing natural resources in fair and accountable ways will bring economic and social benefits and ensure food, water and energy security for all. The SDGs are global plan of action for people, planet, prosperity, peace and partnerships. It is a cohesive environmental and social sustainability vision for all to align their core strategies to contribute to the quality of life on our planet. India has been actively addressing the goals set out in Sustainable Development Goal (SDG) 13, which focuses on climate action. As one of the world's largest and most rapidly developing nations, India has taken various steps to mitigate climate change and enhance its resilience.

When there is continuity of water all other problems of deforestation, agriculture, food supply and industrial use of water can be resolved effectively and efficiently. The linking of the rivers will not only solve the water scarcity problem but also solve the Inter-State Water disputes which has been a perennial problem haunting different governments of different states. Linking of River waters no doubt is a mammoth task but definitely is the need of the hour which should be kick started at least with regional linking of water bodies, which can be extended in a phased manner This will ensure continuous water means 'Life' and also allow us to repair the environment of the damage caused through development and reduce the impact on Climate Change through such damage.

**Keywords:** Water, river, life, environment, sustainable development

### Introduction

We live on a planet, which has a conducive environment for life to exist otherwise it would be as similar to other planets. Life to exist needs a set of Environment to grow and prosper. Earth offers the required set of environment which is formed and provided through the water compounds found on it. Hence there is life on planet Earth wherever there is a source of water.

With this it can be apt to quote the famous quote "Jal Hi Jeevan Hai", which means water is the only source of Life and if we want our Life to sustain or prosper we need to manage water. No doubt the drinking water resources constitute to be less than 1% of the entire water component on Earth but it is enough for the life to sustain on Earth. The water present on Earth has its own mechanism of recycling, replenishing and restoring it with the aid of the Climate. The environment in seasons through the movement of Water Cycle in atmosphere provides water even to the remotest part of the Earth.

This has been a natural phenomenon until the mankind started to interfere with it in the name of development or raising the standard of living or making the life easier with all comforts etc. Leading a better life is equally important but the question here is at what cost. Today the depletion of green cover on Earth for reasons such as Housing, Industrialization,

development etc. is implanting a virus in the natural phenomenon of Climate, thereby resulting in causing changes in the climate.

The human interference in environment in the name of development or making the earth a better place to live resulted in causing uneven rainfall across earth. Places where there is no rain green cover couldn't hold the clouds to cause rain thereby resulting in droughts on unseasonal rains and the places with adequate green cover witnessed cloud bursts. This also resulted in causing heavy downpour, torrential rains or unseasonal rains, damaging crops, causing landslides, floods and other water related calamities.

The impact of such human interference in the natural phenomenon can be minimized by taking measures on improving the green cover such as afforestation etc. but this is a time taking process and this article is focused on management of climate change through water management, which aims at reducing the impact of Climate change through water management i.e. managing existing water resources.

### Research Objectives

- i). To study the impact of Climate Change on Agriculture and Economy
- ii). To study the role of Water Management in reducing the impact of Climate Change.

- iii). To study the Water Management through river water Management.
- iv). To study the Inter Linking of River Water Program, initiatives taken up by the Government of India.
- v). To study the role of Judiciary in Climate change management through water management.

### Hypothesis

- i). Linking of River waters is one of the natural and enduring solution to Climate Change Management.
- ii). Water Management can be achieved through Linking of River Waters.

Before we move further it is important to know what is Climate change and the impact if it on our life and the measures to reduce the impact of such Climate change through water management. One thing is to be remembered always that the aspect with which we are dealing is "Force Majeure" meaning Act of God and we just cannot leave it on God when we ourselves are the root cause of the problem.

The problem which we are trying to address doesn't have borders, which means the impact of it can be felt across the borders too. Hence a globally concerted effort would be an ideal solution for it which is evident in the efforts of WWF through the 17 Sustainable Development Goals and Climate change is number 13 of them. The SDGs are global plan of action for people, planet, prosperity, peace and partnerships. It is a cohesive environmental and social sustainability vision for all to align their core strategies to contribute to the quality of life and our planet. WWF-India clearly believes that resilient economies and poverty eradication can only be achieved by safeguarding the environment, protecting the ecosystems that sustain human well-being and mitigating climate change and its impacts [2].

Environmental changes affect us all, especially the poorest people who are most vulnerable to food and water scarcity, and impacts of climate change. Putting ecosystems at the center of development planning and managing natural resources in fair and accountable ways will bring economic and social benefits and ensure food, water and energy security for all. As a UN member nation, and also as a nation aiming at faster and inclusive growth, India has substantial reasons to fulfill its commitment and achieve the SDGs through effective implementation of its policies, plans and programmes, which also address the global commitments.

The "Climate Action" target of SDG 13 urges us to "take immediate action to combat climate change and its impacts." This objective seeks to reduce greenhouse gas emissions, increase climate resilience, and lessen the negative effects of climate change.

### India's Progress in Achieving the SDG 13: "Climate Action" [3]

India has been actively addressing the goals set out in Sustainable Development Goal (SDG) 13, which focuses on climate action. As one of the world's largest and most rapidly developing nations, India has taken various steps to mitigate climate change and enhance its resilience. Here are some of the key initiatives and progress made by India about SDG 13 up to that point:

- i). **Renewable Energy Expansion:** India has made significant strides in expanding its renewable energy capacity, particularly solar and wind power. The country has set aspiring targets for renewable energy

deployment and invests in grid-connected and off-grid renewable energy solutions.

- ii). **National Solar Mission:** This is one of India's flagship programs to promote solar energy generation and reduce greenhouse gas emissions. It includes incentives and subsidies to encourage the adoption of solar Power.
- iii). **Afforestation and Reforestation:** India has been involved in afforestation and reforestation efforts to increase carbon sequestration and improve the resilience of ecosystems. The Green India Mission is one such initiative.
- iv). **Energy Efficiency:** The Perform, Achieve, and Trade (PAT) scheme and the Standards & Labeling Program are initiatives focused on improving energy efficiency in industries and appliances, respectively.
- v). **Climate Adaptation:** India has been working on climate adaptation strategies, especially in sectors vulnerable to climate change impacts, such as agriculture and water resources. Initiatives like the National Mission for Sustainable Agriculture aim to enhance adaptive capacity.
- vi). **International Commitments:** India has ratified the Paris Agreement and is committed to achieving its climate goals under this agreement. The country has pledged to decrease its carbon intensity, increase the share of non-fossil fuel energy capacity, and create carbon sinks.
- vii). **Electric Mobility:** Promoting electric vehicles (EVs) and investing in EV infrastructure is a part of India's climate action plan. "The Faster Adoption and Manufacturing of Hybrid and Electric Vehicles" (FAME) scheme is one such initiative.
- viii). **Green Finance:** India has been exploring avenues for green finance, including issuing green bonds and incentivizing financial institutions to invest in sustainable and climate-resilient projects.
- ix). **Climate Awareness and Education:** Efforts have been made to raise public awareness about climate change and the importance of climate action. Educational programs and campaigns have been launched to inform and engage citizens.
- x). **Disaster Preparedness:** India has been working on disaster risk reduction and preparedness to mitigate natural disasters and the impacts of extreme weather events, often exacerbated by climate change. It's important to note that India faces unique challenges in pursuing climate action. Balancing economic growth and development with carbon reduction targets is a complex task. Additionally, addressing the impacts of climate change, such as water scarcity and increased vulnerability to extreme weather events, is critical.

India has demonstrated proactive engagement in combating climate change through the establishment of ambitious objectives aimed at mitigating greenhouse gas emissions. The National Action Plan on Climate Change delineates a range of policies aimed at mitigating the impacts of climate change and fostering sustainable development. India has also demonstrated advancements in augmenting its forest and tree coverage, thereby making a significant contribution to the process of carbon sequestration.

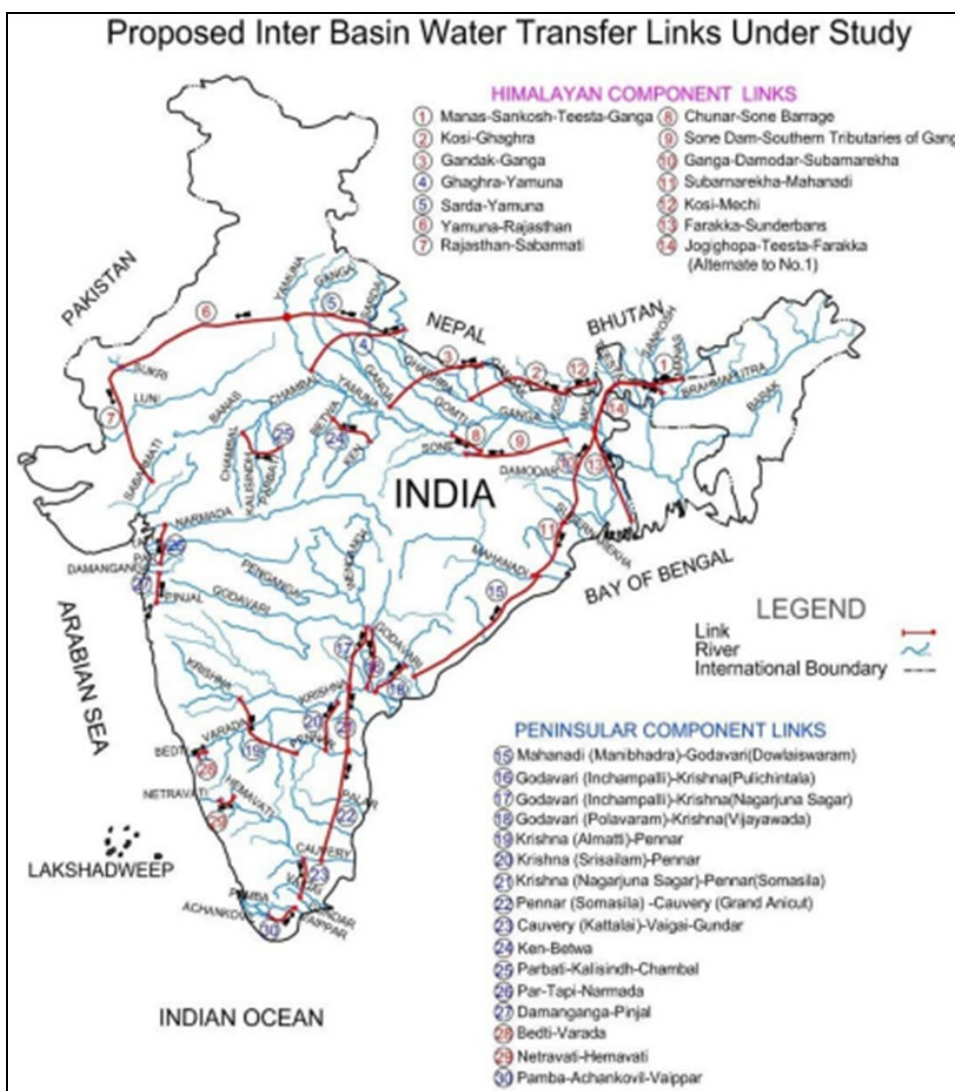
Apart from the above discussed measures there is a need for linking the Rivers across the nation as this will assure continuous water in all river and water bodies, which also means life in all bodies. When there is continuity of water all

other problems of deforestation, agriculture, food supply and industrial use of water can be resolved effectively and efficiently. The water of rivers with water round the year finds its way to the sea and with the use of gravity from high altitudes moving the water shall be an expensive but a worth of it affair.

With the continuity of water in water bodies allows us to take all other measures such as afforestation and increase the green cover so that the impact of climate change can be arrested to some extent. The linking of the rivers will not only solve the water scarcity problem but also solve the Inter-State Water disputes which has been a perennial problem haunting different governments of different states. The states which are at logger heads over water sharing cannot hold the water in their respective dams in case of floods and forced to release the excess water causing damage to the low lying areas.

Linking of River waters, no doubt is a mammoth task but definitely is the need of the hour which should be kick started, at least with regional linking of water bodies, which can be extended in a phased manner This will ensure continuous water means 'Life' and also allow us to repair the environment of the damage caused through development and reduce the impact on Climate Change through such damage.

The NWDA has been entrusted with the work of interlinking of rivers under the NPP. The NPP has two components, viz., Himalayan Rivers Development Component and Peninsular Rivers Development Component. 30 link projects have been identified under the NPP. Ken Betwa Link Project (KBLP) is the first link project under the NPP, for which implementation has initiated [4].



Source: nwda.gov.in

Fig 1: National Water Development Agency

The above pictorial image of India with rivers in blue and the proposed Inter Basin Water Transfers under study in red at national level. The Water from the Perennial basins is being transferred to basins with larger areas or basins with seasonal waters.

The 'National Council for Applied Economic Research' in its report of April 2008, on the 'Economic Impact of Interlinking of Rivers Programme' has analyzed the economic feasibility and the viability of the IRP. The following are the few of the excerpts from the report:

“The ILR Programme although an ambitious Programme certainly requires attention of policy makers. In order to put economy of high growth path, and improve quality of life of people in the rural areas, a mixed policy of increased availability of irrigation and increasing non-farm activities is required.

The ILR Programme is a major endeavor to create additional storage facilities and expected to provide additional irrigation in about 30 million hectares and net power generation capacity of about 20,000 to 25,000 MW. Other fringe benefit

of Programme includes mitigation of flood and drought to a certain extent, fishing at dams and reservoirs

The ILR Programme has the potential to reduce the vulnerability of Indian agriculture to rainfall and put agriculture on sustained growth path. It is expected that the ILR is capable of increasing food grain production growth by additional 2-percentage point over the baseline scenario food grain production is expected to be 305.66 million tons in the baseline scenario (without ILR Programme).

It is difficult to quantify economic impacts of benefits such as the mitigation of drought and floods, the increased income because of fishing and amusement parks at the dams and reservoir sites and so on. Since 1950-51, Indian economy grew by more than 8 per cent only in four years. Each of these years coincides with high growth in agriculture sector [5].”

Now with the policy on water management through NWDA in place and the economic report of NACER on IRP, the concept of climate change management through water management by linking the river waters makes more sense than any other measures of water management. Weather management is not limited or entrusted to one department as such, it is the responsibility of the entire society, hence there is role of judiciary also to it.

Judiciary has been at the center of epitome when it comes to deal with the matters of Environmental Jurisprudence. Judiciary has been providing the necessary breakthrough through Public Interest Litigation on environmental matters. The MC Mehta, Taj Trapezium, Union Carbide case etc to name a few are some of the landmark cases which have provided the direction to deal with the Environmental issues.

In the case of IRP also the Judiciary have been moved through a PIL bearing number Writ Petition (Civil) No. 668 of 2002 [6] instituted with the a prayer to Nationalize the Rivers in India and Inter link the rivers in the Southern Peninsula such as Ganga, Cauveri, Vaigiai and Tambaravani while directing the government to formulate a scheme to channelize the water flowing in rivers and ensure equitable distribution of the same.

The Hon’ble Supreme Court stated that these projects are in the national interest, and it is the unanimous view of all experts, most State Governments and particularly, the Central Government for implementation of such a Programme having wide national dimensions and ramifications. It will not only be desirable, but also inevitable that an appropriate body should be created to plan, construct and implement this inter linking of rivers program for the benefit of the nation on the whole.

The Hon’ble court not only expresses a pious hope of speedy implementation but also do hereby issues a mandamus to the Central and the State Governments concerned to comply with the directions contained in this judgment effectively and expeditiously and without default as it is a matter of national benefit and progress. They see no reason why any State should lag behind in contributing its bit to bring the Inter-Linking River Program to a success, thus saving the people living in drought-prone zones from hunger and people living in flood-prone areas from the destruction caused by floods.

## Conclusion

Managing climate change through water management is the most dependable solution. The water in the rivers can be channelized by lining the rivers which shall provide effective solution to both drought and floods. The interlinking of rivers will bring water to drought hit areas and also ease the rising water levels in case of floods. With the inter linking of the

ivers, the water in the rivers can be channelized for various purposes including Agriculture, which is of primary concern and is directly linked to the climate.

Farmers sow their crops in anticipation of rains and any drought or flood like situation is devastating to the crops. Hence by inter linking rivers the continuity of the water can be ensured and effective food management practices can be adopted to counter the food crisis which is the end result of changes in climate. Sustainable Development Goal (SDG) 13, "Climate Action", is one of the 17 goals set out in the United Nations' 2030 Agenda for Sustainable Development. The goal is to take urgent action to combat climate change and its impacts.

The IRP initiated by the Government of India entrusts the NWDA and the NACER for providing and executing the IRP by conducting the Feasibility, viability and Execution of the IRP. The implementation of the IRP is an expensive affair as it requires long term commitment of resources of Finances and other ground level support for the execution of the same. This demands a higher level of cooperation between the Central Government and State Government and State Government of One state with the State Government of the another state.

Acquisition of Land for the purpose of channelizing the water from rivers has been a herculean task and though the preliminary study regarding the feasibility of the project has been completed over Two decades earlier, the Feasibility Reports of some of the River basins, the Detailed Project Reports of a some of the River basins etc. are yet to be completed and executed. The longer the delay in the implementation of the IRP, the commitment of resources to IRP has also weakened.

The research paper through the Doctrinal method of study studies the various objectives of the study by analyzing the related content from the reports of NWDA and NACER websites and also through the reportable cases of Supreme Court of India. The first and the second hypothesis being proved as there is enough evidence proving them not only on domestic front but also in international arena through the 17 Sustainable goals of which the Goal no 13 dealing with Climate Action, which has been at the core of the study. One must also remember that while we talk about channelizing the River water we are dealing with a fraction of the just one percent of the drinking water available on the earth.

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