

# Role of Indian Government to Formulate Effective Policy for Water Sustainability and Climate Change

S. Swetha

Assistant Professor, EEE Dept, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi  
swethasrinivasan4@gmail.com

---

**Abstract – Problem Statement:** In the context of India meteoric urbanization, globalization, industrialization, and expansion in population in India have generated a number of environmental problems. The impact of climate change such as pollution and droughts have the dormant effect of demolishing the farmlands and that affect the livelihood of the farmers. The present article deals with the role of Indian Government to formulate effective policy for water sustainability and climate change.

**Methodology:** In order to conduct the research qualitative strategy has been taken and secondary data collection technique has been employed.

**Main Findings:** The research has found that several measures have been taken by the Government of India in order to meet the goal of clean and green India. Some of the interrelated policies and action plans have been recognized in order to meet the Sustainable Development Goal (SDG) by the Union government of India. In order to deal with the water supply and reduce leakage and reuse of water, the central government of India has taken initiatives.

**Conclusion:** From the present research it can be stated that the government of India has taken possible measures in order to meet the demand of water and reduce the environment pollution in the country. The initiatives taken by the government have beneficial effects on the lives of the citizens.

**Keywords—** Climate change, water scarcity, sustainability, National policy

---

## Introduction

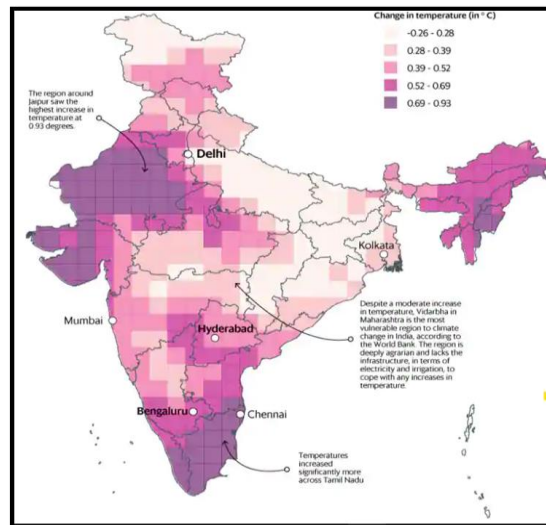
Meteoric urbanization, industrialization, and expansion in population in India have generated a number of environmental problems and in this context, water pollution and climate change become the major one. This pollution led to deterioration in the quality as well as in the quantity of the water and sequentially affected the availability of water that is used for consumption. This can be seen that in spite of various steps taken by the Union government and the state governments of India, there is a continuous decline in the quality of water. Another major problem faced by the people of India is the change in the climatic condition of the country. *There is a need to undertake some effective policies in order to reduce the harmful consequences of greenhouse gases in the environment.* This can be helpful for the economic growth of the country and produce a powerful economy. This can also be important for improving the health of the citizen and maintaining proper hygiene. On the other hand, the impact of climate change such as pollution and droughts have the dormant effect of demolishing the farmlands and that affect the livelihood of the farmers. In the present article, the role of Indian Government to formulate effective policy for water sustainability and climate change has been discussed.

## Literature Review

### Climate change in India

India is a tropical developing country that faces some major challenges in order to cope up with the ramification of climate changes. As mentioned by Burgess *et al.* (2017), urban and rural Indian populations contain a huge number of people living in the extreme zones of the country in terms of temperature variations than other developing countries. It can be seen that there is an obvious inequality in the ambient temperature on death of the human population. In general, climatic change is a global occurrence with local consequences. It can be seen that the central government of India has taken the *National Action Plan on*

*Climate Change (NAPCC)* on June 30, 2008, in order to articulate the domestic climatic condition (mea.gov.in, 2019). This policy engulfs the vision of the country that is the ecological sustainable development and works towards the implementation of the plan.

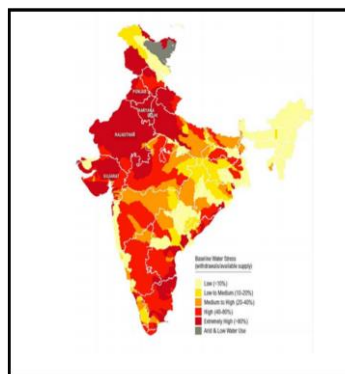


**Figure 1: Growing threat in Climatic change in India**  
(Source: mea.gov.in, 2019)

In the present context, it can be seen that our country India is now more vulnerable to climate change. As per the data of *Global Climate Risk Index of 2018*, India is the 12th vulnerable country on the basis of impact of climate change (germanwatch.org, 2018). Due to the climatic hazard the country witnessed almost 3500 deaths every year. Another policy has been taken by the government in order to take actions against the climatic change is the *Intended Nationally Determined Commitments (INDC)*, that was adopted on 2nd October 2015. This is basically a statement of intent on the actions against climate change that has been taken in the run up to the *Paris Climate Change summit* held in the same year December. As mentioned by Singh and AchutaRao (2019), unpredictability in the changes towards future and changes in the temperature shows a complex picture in the decadal scale variability. At present, India is advancing in order to make certain a clean energy future and clean environment for the better future of the citizens.

**Water sustainability in India**

In the present scenario it can be seen that the unregulated use of water has coupled with the collision of climate change that has led to a hazardous situation. The present situation forces the government to think about the proper usage of resources including water resources. As per Rosa *et al.* (2018), the irrigation activity of many areas is in general dependent on the freshwater resources that pressurize the capability of humanity in order to increase the production of food. There is a gap between the sustainability of freshwater that needs to be supported for food production in various regions of the country. Different water resources such as lakes, ponds, rivers conventionally provided distinct significant functions for societal development. In the contemporary time, many of the ecological as well as economical demand has been met by the water resources. As opined by Dhawan (2017), *almost 40% of the demand of freshwater in the urban areas of India has been met by ground water resources* and as a consequence, the water table in most of the urban areas of the country falling at an alarming rate. In many cities and towns of India, *the water table has been falling at a rate of 2-3 meters per year.*

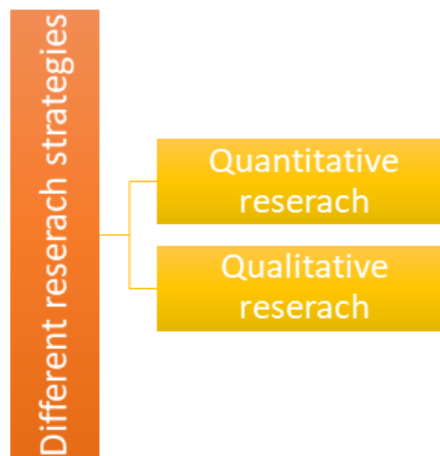


**Figure 2: Baseline for water stress in India**  
(Source: NITI Aayog, 2018)

A survey that has been conducted by the Tata Institution of Social sciences (TISS) has shown that most of the urban areas of the country are suffering from the lack of availability of freshwater. **Overuse of water resources can be the reason for the shortage of water that can lead to agricultural problems and that in turn harms the environment.** As per the research of Aberilla *et al.* (2020), there is a need to undertake some advanced technologies in order to gain control over the deploying energy such as water resources in the remote communities of the country. Economic, social, and environmental implications of the technologies can improve the synergistic relationship. In other words, greater access to advanced technology for water resources, greater the chances of human development.

**Proposed method**

The present study deals with the thorough evaluation of the role of Indian government and the policies that have been taken by the government for formulating the policies. In this present research article, a qualitative research strategy has been employed in order to conduct the research study. Research strategy has depended on the purpose of the research that has been taken in order to fulfil the purpose of the study. As per (Apuke, 2017), in the Qualitative strategy type of information can describe attributes as it is gathered through questionnaires, interviews, or observation, and it's typically presented as a narrative. In The present study, **Qualitative research strategy** has been undertaken to gain data about the different context of the research. A descriptive research goal has been taken into consideration for the present research in order to understand the characterization of water sustainability and the climate change in India.



**Figure 3: Research strategies**

(Source: Self-developed)

On the other hand, a secondary data collection method has been employed for the present study. Secondary data can be collected through **peer reviewed journals, government websites and newspapers.** Secondary data has only been collected through reliable sources in order to maintain the quality of the research. The data has been collected from reliable sources from 2017 to 2021 to gain a well-grounded outcome and this is the **inclusion criteria** of the research. However, doctoral dissertation and conference papers have not been considered and the papers before 2017 have rarely been taken as reference for the study and this is the **exclusion criteria.** Moreover, the analysis has been done through a **systematic review and thematic analysis** for fulfilling the objectives.

**Result and discussion**

**Systematic review**

Source	Findings	Significance
Singh <i>et al.</i> 2018	Multiple examples have been found in order to uptake a successful utilization on short-term climatic conditions of India and Africa. It has found that participatory approaches can be appropriate for promotion of decision making.	The research has proposed a framework in order to increase the profitability for the climatic condition of India and Africa.
Rattani, 2018	Different National Action Plans have been taken by the government of India that aims in improving the knowledge	This paper deals with the programmes undertaken by the council of Prime Minister of India

	on the system that supports the climate change action with the help of research.	in order to take necessary steps on climate change.
NITI Aayog, 2018	It has found that a strong focus on the water planning of the regional urban areas can be helpful in order to mitigate the scarcity of water.	This research deals with the positive sides of the water governance in the country and tries to put a light on the management programmes taken by different states of the country in order to save water.

**Table 1: Systematic Review**

(Source: Self-developed)

**Thematic analysis**

**Understanding the role of Indian government in climate change**

Different measures have been taken by the Government of India in order to meet the goal of clean and green India. In this context, some of the interrelated policies and action plans have been recognized in order to meet the Sustainable Development Goal (SDG) by the Union government of India. However, the Indian government had taken steps to reformulate the Domestic Climate policy that integrates and gave an institutional design for effectual implementation of the climate (dst.gov.in, 2021). India tries to reduce the intensity of emission and installed a power capacity of non-fuel-based energy resources. The government is also taking steps to create an additional carbon sink of 2.5-3 billion tonnes of CO<sub>2</sub> by 2030.

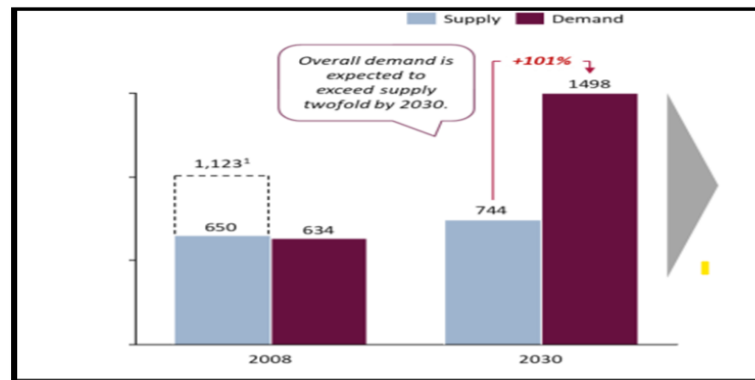


**Figure 4: National policy initiatives for Climate change by GOI**

(Source: Influenced by dst.gov.in, 2021)

**Understanding the role of Indian government in water sustainability**

Water management can be seen as an increasingly recognized management system in the Indian context as the growth and the sustainability of the ecosystem depends on the water management. There is an evolution in the hydrological cycle that involves the interventions of the contemporary world. As mentioned by Noga (2017), there is a change in the water paradigm that indicates a shift in the way of human thinking about the water resources and help in taking necessary steps. In India, the demand of water has been projected as 23.2 trillion liters in the year of 2015 and a projected amount can be as high as 47 trillion litres in 2025 (SK, 2019). The government of India takes necessary steps in order to supply clean water and manage the scarcity of water. In order to deal with the water supply and reduce leakage and reuse of water, the central government of India has taken initiatives such as *National Water Policy 2012*, *Steering Committee on Drinking Water supply and Sanitation*, by the Planning commission of India.



**Figure 5: Demand and Supply of Water in India**

(Source: NITI Aayog, 2018)

### Discussion

As per the above analysis it can be stated that the Government of India has taken necessary steps towards meeting demands of water scarcity and climate change. Different National Action Plans have been taken by the government of India that aims in improving the knowledge on the advanced system that supports the climate change action with the help of research. The National Action Plan on Climate Change aims in formation of knowledge network among the knowledge institutions and establishment of national capacity for modelling the impact on climate (dst.gov.in, 2021). The government of India takes necessary steps in order to supply clean water and manage the scarcity of water.

### Conclusion

In general, climatic change is a global occurrence that can have local consequences. In the present scenario it can be seen that the unregulated use of water has coupled with the collision of climate change that has led to a hazardous situation. From the present research it can be stated that the government of India has taken possible measures in order to meet the demand of water and reduce the environment pollution in the country. The initiatives taken by the government have beneficial effects on the lives of the citizens.

### Future work

The GOI has taken all possible initiatives in order to tackle the problem associated with agricultural growth. However, there is a need to take more measures towards the conservation of water and raising the level of water in the water table. Moreover, in future the research on this ground should find out some possible measures and advanced technology to deal with the problem.

### Reference

1. Aayog, N.I.T.I., 2018. Composite water management index. National Institution for Transforming India, GOI.
2. Aberilla, J.M., Gallego-Schmid, A., Stamford, L. and Azapagic, A., 2020. An integrated sustainability assessment of synergistic supply of energy and water in remote communities. *Sustainable Production and Consumption*, 22, pp.1-21.
3. Apuke, O.D., 2017. Quantitative research methods: A synopsis approach. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 33(5471), pp.1-8.
4. Burgess, R., Deschenes, O., Donaldson, D. and Greenstone, M., 2017. *Weather, climate change and death in India*. University of Chicago.
5. Dhawan, V., 2017, January. Water and agriculture in India. In *Background paper for the South Asia expert panel during the Global Forum for Food and Agriculture (Vol. 28)*.
6. Dst.gov.in, 2021. Climate Change Programme. Available at <https://dst.gov.in/>
7. Germanwatch.org, 2018. Global Climate Index. Available at <https://germanwatch.org/>.
8. Mea.gov.in, 2019. India's Climate Change Policy: Towards a Better Future. Available at <https://mea.gov.in/>.
9. Noga, J.M., 2017. A framework for corporate engagement in water, sanitation, and hygiene initiatives.

10. Rattani, V., 2018. Coping with climate change: An analysis of India's national action plan on climate change. Centre for Science and Environment, New Delhi.
11. Rosa, L., Rulli, M.C., Davis, K.F., Chiarelli, D.D., Passera, C. and D'Odorico, P., 2018. Closing the yield gap while ensuring water sustainability. *Environmental Research Letters*, 13(10), p.104002.
12. Singh, C., Daron, J., Bazaz, A., Ziervogel, G., Spear, D., Krishnaswamy, J., Zaroug, M. and Kituyi, E., 2018. The utility of weather and climate information for adaptation decision-making: current uses and future prospects in Africa and India. *Climate and Development*, 10(5), pp.389-405.
13. Singh, R. and AchutaRao, K., 2019. Quantifying uncertainty in twenty-first century climate change over India. *Climate dynamics*, 52(7), pp.3905-3928.
14. SK Sarkar, 2019. Water, sanitation and hygiene must be looked at holistically. Available at <https://www.thehindubusinessline.com/>