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# An Analysis on Water Management System in India and Its Repercussions on the Availability

Dr. Sumanta Bhattacharya[1], Bhavneet Kaur Sachdev[2]
[1]*Research Scholar at MAKAUT , Public–Foreign-Defence Policy Analyst , C.E , CH.E , CCIO , M.Tech, MA in Development Studies, LLB, MA in Security and Defence Law , DIA&D, DG&GS, PGCPP&A, MPI(oxford University)*
[2]*Political Science hons (Calcutta University) Masters in Development studies*

***Abstract: India is the largest growing population where water is emerging as a problem , there is water crisis in the country , with lack of professional people to management water resource, treat waste water and water conservation which has prevailed in India since Indus valley civilization has lost its importance over the years .90% of the water is sued for agriculture , people are facing shortage of drinking water , 70% of the polluted water which is been drunk by millions of people are resulting in the death of lacs of people . Today individual states have taken up the initiative to preserve water through adopting traditional method or the use of green technology .Modern cities are facing scarcity of water , they are dependent on water tanks , the groundwater is over in many cities . On the other hand India is the largest exporter of water in particular to China , India needs to increase its export taxes to increase the revenue , it should adopt new technologies and save water , build more plants and forest across the country to recharge groundwater and make India a water secured country.***
***Keywords: Population, India , water conservation , water management , traditional methods , green technology , taxes , revenue***

## I. INTRODUCTION

Water is the chef component in our life . We require water for almost all kind of agriculture activities apart for surviving . Today water has emerged as catastrophe because of its shortage . Its not just India, but most of the developing countries today have shortage of water . Water crisis not only encompass drinking water , but also for other development . Rapid climate change has resulted in water crisis . It is natural resource so we have used it in massive amount . We require water for construction , irrigation , development projects and many other . The main source of water is ponds , rivers , lakes and groundwater , the earth surface is covered with third fourth water , where less than 1 % of the water is fresh water meant for drinking . Lack of water also include sanitation , sewage system .India has used maximum of its groundwater for development and for the purpose of disturbance . Water crisis has an equal effect on food security , as 70% of the water is used for irrigation purpose , India dependents on monsoon for its crop productivity , apart from that due to lack of sanitation in India , there are have been lacs of death of women get to poor sanitation . The main reason behind water crisis in India is lack of water management , we don't have proper water waste management resources nor treatment plants . In rural India , a person has to travel 4 km to reach the nearest source of water , many have to travel to neighbor to collect water . Collecting water and then carrying them on their heads it is the work of the women in the Indian villages , even during their pregnancy they have to do , many of the villages have no water left , water is vanishing .India only saves 8 % of the rain water . Climate change has resulted in heat waves which Delhi and Punjab is experience today . Prolonged drought with rapid floods and cyclone the agriculture land has become unfit for cultivation , Trees could withstand cyclone and also recharge groundwater , due to rapid deforestation we cant do anything now . India is consuming polluted water , 70% of the water is unfit for drinking , people are dying due to lack of water and food ,which ultimately affects the economy ,with no food grains how will India 's economy grow as agriculture contributes maximum to the GDP . Its like a chain where one is dependent on the other , where a single component that is water it is not available it cant devast the economy , food security and even bring in Poverty . The reason behind India water crisis , is poor water waste treatment and management of resources , India has already been part of water wars and currently she is having water conflict with its neighbor countries in particular China .

## II. RESEARCH METHODOLOGY

For the purpose of this exploration , I have used a amalgamation of two of the archetypical social sciences research tools application –as they are authentic and brilliant method to assemble statistics from multiple appellant in an methodical and convenient way . Question were asked to the common youth , public policy Analyst , urban people ,farmers , interviews –consisting of several interrogation which were dispersed among representative of each contender group .

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## III. OBJECTIVE OF THE RESEARCH PAPER

The main areas of exploration in this paper incorporates

*1)* Water conservation and water management system in India.
*2)* What is been done to end the water crisis problem in India .
*3)* What is the future of India with rising population and lack of water to serve the development and growth of nation.

## IV. LITERATURE REVIEW

The world has faced 7 water wars. One was India and Pakistan war . The share of water between the upstream and downstream country is a major risen behind the going water crisis and water management. For instance China and India, in the use of river Bramhaputra .China being an upstream country is building dams in the region which is affecting the downstream country India leading to water conflict. This is one part of water management issue, In India water conservation is an important element which can help to eliminate the problem of water shortage. With climate change along with changing pattern of rainfall every year, the Indian government has decided and are working on traditional system to for water harvesting in the nation and these methods are good for the environment. Drought and flood was very common in the ancient time for this region every part /state in the country used traditional methods of water harvesting .Since Indus valley civilization they have been practicing water conservation and drainage system . For instance The settlement of Dholavira is an excellent example of water engineering by lying down a slope between the two storms, Chanakya also mention about the irrigation using water harvesting in Arthashashtra King Bhoja of Bhopal had built the biggest artificial lake in India . Chola king Karikala had built the Grand Anicut across the river Cauvery to divert water for irrigation purpose which is still operating today. Sringaverapura had built a water harvesting system that used the natural slope of land to save floodwaters from the river Ganga .India since ancient time have been saving water , monsoon water for dry seasons . The techniques are old , not so popular but are still in use . Jhalara is one such method which are rectangular shaped stepwells used to supply water easily for religious, royal ceremonies are communities used which can date back to 1660AD, another one is talab/Bandhi these are like reservoirs which are used for domestic purpose and drinking , they are both natural and manmade , lakes of Udaipur are man made then Bundelkhand which is natural .We have talai , Bandhi and sagar depending upon the size. Bawari this was very common in Rajasthan , they are unique stepwells to save water , it was use to store rainwater as Rajasthan received little rainfall , the water was transported through canals which were built on the hilly outskirts . the water would drain into the ground , rise water table and also recharge a number of aquifers , there are layered of steps built surrounding the reservoirs to narrow and deepen the wells. We have Taanka , Ahar Pynes , Johads – a very old technique which is used to conserve and recharge ground water , there are like small check dams that store rain water , found in Karnataka and Odisha they are referred with different names .

## V. FINDINGS

In a native tribe the Kuruma community uses a special kind of well referred to as panam keni to store water , by using wooden cylinders which provide ample amount of water in the hot summer season , khadins which are related to agriculture (runoff water) , Kund ,Baoli ,Nadi , Phad which is a community driven irrigation system , it is operated on three rives which involves check dams , canals , agriculture block , escape outlets , distributaries and filed channels , Zing , Kuhis prevalent in Himachal Pradesh , Zabo , Bamboo drip irrigation system part of tribal farming ,Ramtek Model , Jackwells , Pat system ,Eri -it is one of the oldest water management system in India practiced in Tamil Nadu to control floods , prevent soil erosion , prevent wastage of run off water at the time of rainfall .

Many states have adopted aquaponic , Cherai a coastal village in Kochi in the state of Kerala , have been successful in adopting aquaponic since 2016 , there have been working . Aquaponic is basically an amalgamation of aquaponic and hydroponic .This has saved humongous amount of water , as hydroponic is growing crops without the use of soil and reduce the use of water by 95% . Now if both this techniques are combined where the plants are feeding on the discharge waste of the aquatic organism they are cleaning the water for the fishes , there is a dependence for microbes which will play a important role in nutrition of the plants . As majority of the sectors are highly dependent on water , a good management of water resources can save the water and help in the economy growth . In order to save water , people have adopted indoor farming which will reduce the amount of water uses by 95% , the 70% of water that have been used for irrigation will eliminate , since 2019 India is seeing a rapid rise in indoor farming and aquaponic. Water is being treated using green technology in India , along with that the sewage waste is being used for agricultural purpose , they water waste is being treated at three levels primary , secondary and tertiary , the primary method is being used by the Municipal and small cities in the primary level there is use of screen and settling tanks to remove the solid waste from the water and at the secondary level , use of bacteria to remove pollutants , which make 90 to 95% of the water pollutants free , this is done for

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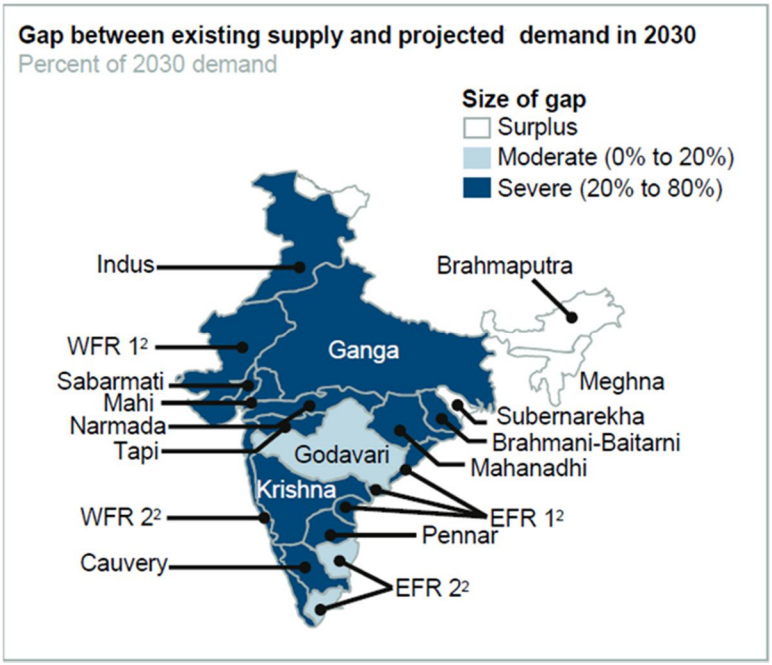
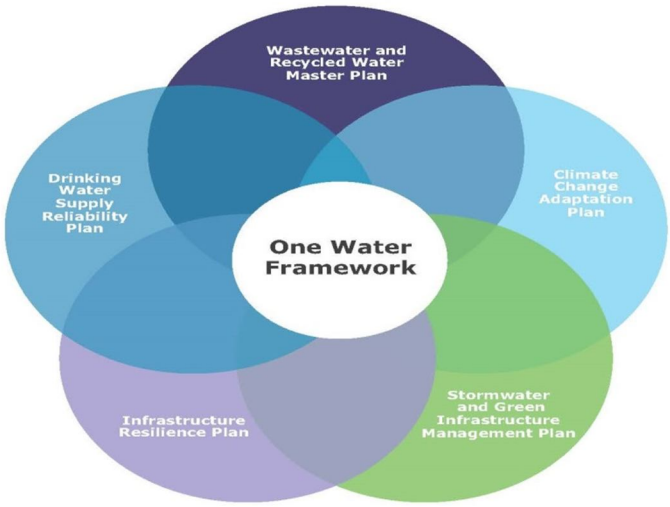
Municipal water waste , then we have the system of chlorination fact sheet , in Small cities we have the system of lagoons and simple collection system , individual septic which will discharge the waste from water , Lagoons are reservoirs where the solid waste take around 20 days to settle down . Constructed wetland is an example of how you treat water waste .In this modern era, we are standing in an important crossroad where water is our integral part of our life which need to be processed, maintain and treat in a proper manner.




The Jal Shakti Ministry have taken the initiative to clean the river Gange and its tributaries to provide save drinking water , Various steps have been taken by the government of Individuals states also like in Punjab , drainage system is being repaired for alleviate the issues of water logging , In Rajasthan , ponds are being created in the farms which will bring benefit to the people . In Telengana , the construction of tanks for water conservation has changed the life of people in the Thimayapalli region , In vellore , 20,000 women have come together to revive the naga river in Tamil Nadu state . There is ample is use of technology to save water for instance Tamil Nadu has adopted thermocol covering technology to save water , the state government has allocated 10 lakh to experience different technologies to prohibit water evaporation as everyday 1.2 million cubic feet of water is lost due to evaporation .On e of the problem with themocol technology is , it can affect the fish .

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Water and economy goes hand in hand where the price matter a lot , people tend to use less what when they pay for it , 10% increase in the price leads to 3 to 4 % less use . Income matters people tend to use more water when they are rich and less when they are poor . .You don't get 24 hours water in many places , people are construction more artificial lakes and ponds for water uses .Water scarcity is emerging in India , with rapid growing population and lack of resources it is difficult to serve the people . We require for all our daily activities , water crisis is being experienced in many parts of India , in particular the rural India , where majority of the houses don't have sanitation provisions in the North and South region . For the development of country for housing , survival ,you require huge amount of water . Even for rural India , in order to give people basic necessity there is no reforms for making toilets and sanitation which will have a bad effect on the health of the people and also led to economic lost . As food security , water security and health are the main pillars for the development of a economy , you require citizens in good health to work and produce adding to the economy and for this proper management of resources is required . India exports water to China , Middle East , Maldives and US , Singapore and some more , India exports mineral water , aerated water and natural water . It has exported 3,850,431 litres of water , maximum is send to China since 2015 and also the largest exporter of water in the world , where it is unable to provide water to its own people.

## VI. WAY FORWARD

We need to conserve more and more water to serve the growing nation. We need to make vertical farming in India a must and even state and family in India in the urban sector start with indoor farming, the amount of water uses will be reduced , and we have plenty of water available , followed by India needs to introduce a standardized water waste management system in India with the use of green technology . It will remove the contaminants from the water with affecting the environment which can be used for irrigation and drinking .Efficiency technology and renewable energy The use of solar water disinfection by using solar energy that will make water save for drinking . A water treatment process which can improve the microbiological quality, can be used at the household level also .With water conservation , the taxes on water will also reduce . Already 70% of the water is unpolluted , For industrial and other construction purpose water taxes should be high so that they use it in limited amount . Water taxes will add to the government revenue and which can used for better water treatment purposes . . We need to set up research water centre in every state to install waste water treatment plant in every district and state . India water taxes will bring in more revenue with India exports water to China , Maldives , UAE , Singapore , US , Saudi Arabia and Qatar .

## VII. CONCLUSION

We require new technology and professional to look into water conservation system and proper management of water bodies and resource , today many villages and urban area are facing water crisis , this mainly due to lack of management and water waste treatment system in India , water is used in sectors for drinking to construction purpose .We need the government to introduce new methods water conservation , where the centre and the state collaborates on the construction of canals , proper drainage system , sanitation provisions for the rural India , which will over help to increment the income ,where there will reducing on water taxes and increase export .

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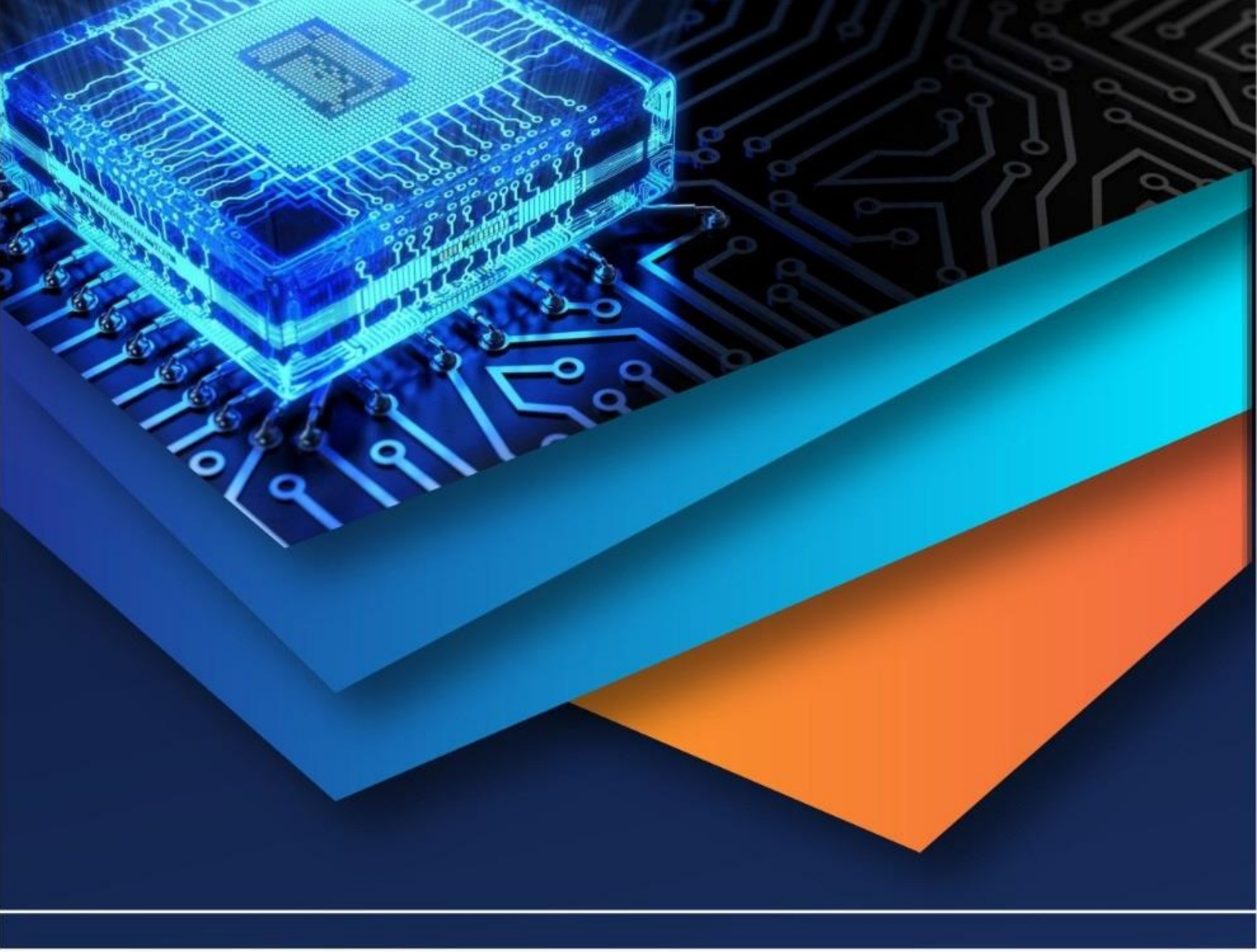

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