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INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 04, Issue 11, November 2024, pp : 867-870

e-ISSN : 2583-1062
Impact Factor : 7.001

CONCEPT OF DROUGHT AND ENVIRONMENTAL CONSERVATION

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DOI: https://www.doi.org/10.58257/IJPREMS36747

ABSTRACT

One part of groundwater management is to increase the storage of groundwater, while controlling groundwater withdrawal, using extracted water sparingly, growing crops with less water, purifying and reusing water used in factories is another complementary part. Recharging ground water by both natural and artificial methods during monsoon is also an important thing. However, if the water flowing through the river channel is reduced due to the enrichment of ground water by intercepting and depleting rainwater, the water in the reservoirs of large dam schemes may become less water and lead to controversy. Because the water in the reservoir of the dam is owned by the government, i.e. public property, while ground water is mostly privately owned. It transfers ownership of water.'

The issues of irrigation, water and agriculture are not to be dealt with alone, they are public and collective in nature. The issue of water and irrigation is no longer the concern of farmers, drought-prone people or people in drought-prone areas. From the gram sabha to the global level, the issue of water is becoming important.

Key Words: Watershed, Drought, Wet Drought, Dry Drought

1. INTRODUCTION

'Irrigation is needed to catch large amounts of rain runoff. Agricultural development is completely dependent on rainfall. Planned agricultural development based on modern technology cannot take place because it is based on uncertain rainfall. It is necessary to create integrated alternative irrigation facilities in permanently drought-prone or drought-prone areas. Water is an important production factor in erratic monsoon climate regions.'

'Population explosion, unlimited expansion of civilization, industrialization, adoption of western lifestyles, rampant misuse of water, suicidal desire for wealth accumulation, decline in agricultural production, over-exploitation of the earth's belly (ground water) reservoirs, water provided by nature in the form of rains and inordinate withdrawal of water driven by effective means in the desire for additional production. The water problem is becoming more and more explosive day by day due to the huge disparity created in this. Groundwater abstraction and recharge are interrelated processes. Due to various reasons, underground water i.e. groundwater is withdrawn on a large scale. Hence water management is also required on a large scale to raise the deepening water table or to recharge groundwater.' (Lovekar:2012:24) Due to the large uncertainty of rainfall, there is no alternative to water management to prevent drought or drought due to rainfall.

"The increasing population, large-scale industrialization, the huge increase in irrigated agriculture area after the Green Revolution are increasing the thirst of the people of our country. On the other hand, water availability is decreasing due to increase in water pollution, depleting ground water level, incessant seasonal rains, improper planning of water use. The water issue is primarily an issue that creates conflict between people, between states and between countries. Water today should be used like money; Otherwise, the question of human existence will arise. For that every person should avoid possible danger by using water carefully. Keeping in mind all these dangers, future water management should be done keeping in mind the current as well as future conditions. If not, the water condition will be very stressful in the future. Therefore, it is the responsibility of the government to design, legislate, and regulate the framework of water policy and the government is bound to carry it out. Since water is a natural resource, it cannot be forgotten that other living creatures as well as humans have a right to it. While managing water, it is necessary to strictly plan and manage this resource by maintaining the right balance of the situation. At the same time, there is an urgent need to use water in an efficient, equitable and sustainable manner.'.

As the rain falls in a small amount, at the same time, the rivers get flooded due to heavy rainfall. Irrigation projects in such regions can prevent floods to a large extent. Therefore, irrigation schemes are necessary even in flood-prone areas.' (Sawadi:2008:81) 'Humans have made great progress in the agricultural sector as well as in the industrial sector. Water is needed for that. Moreover, irrigation is necessary to meet the need of power generation on a large scale. There is an urgent need for water irrigation to meet the drinking water needs of the growing cities and metros and for other purposes.' (Suryavanshi: 2000: 10) 'Bayasha rivers are not perennial. During the rabi season, very little water flows from the rivers. 80 to 90 percent of the annual water flow is carried in four months during the monsoon season itself. In order to use this water, it is necessary to block a large amount of water in the riverbed.' (Sawadi:2008:99)

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'Availability of water is decreasing day by day. Water consumption on the other hand is increasing on a large scale. Because of this, water will be less available for agriculture, it is said that water is so important that future wars will be fought only for water. For this, it is necessary to use water sparingly. Considering today's situation where there is abundant water availability. At such places, water is often given by wind measurement. Due to this, the land becomes saline and waterlogged. Water does not dry out quickly in the soil. Water does not drain properly. Therefore, as the crops do not get adequate amount of oxygen in the soil, the germination of the seeds is reduced. Controls on excessive water use seem appropriate these days.'

Considering that rainwater will seep into the ground, vacant land is shrinking, people and governments consider the issue of shelter more important than water. Even if there are houses everywhere, the water will dry up in the ground, but due to the subsidence of the land, some lakes have been destroyed or reduced in size, and houses or townships have been built in those places. The number of polluted lakes started increasing. Ground water has increased for clean water. The water level started getting deeper every year. As the lake became smaller, the water storage decreased. The water started flowing into the village or the city instead of going into the lake. As a result, flood situation started to arise. It is only when summer comes that one realizes that there is water and there is life, and when the monsoons begin, people calm down.'

Although there are many names for water like Jal, Neer, Udak, Jeevan, in general the term water is used in practice. Water is a precious gift given by nature, but today we are consuming this precious gift by increasing our need. We only do the work of pumping as much water as we need, due to such unlimited consumption and additional use, the number of rivers is increasing rapidly and desperate efforts are being made to increase the production in the agricultural sector. 20-25 years ago, the ground water table was 20-25 feet below ground due to competition for water abstraction. Today it is growing and has gone deep into the soil up to 200 to 250 feet. It will not be easy to tell how to use this water and how not to use it. Recognizing this, efforts are being made in this regard on water and available sources of water and water use based on the government law. It is the need of the hour to consider the issue of conservation and recharge of available water.'

Watershed Development Program of Govt

'While developing the watershed area, continuous level grazing in low rainfall area, embankment, soil conservation and horticultural benefit area, land development works for strict use of less water, construction of drain bunds, construction of diversion embankments, cement embankments, Ardan embankments, unmade stone embankments, branch embankments, Sustainable development of agriculture is necessary by implementing treatments such as farms, forestry dams, digging ponds, recharge pastures, percolation ponds, plantations, grazing restrictions, etc.

It is necessary to pay attention to ensure that they get at least one crop in a year through watershed development, afforestation, drain dams, villages and farms. Otherwise, how will the migration of population from villages to cities and unlimited growth of cities be prevented.

'The implementation of policies by the administration is not well done while implementing the treatment of watershed area development. At the same time, corruption, red tape, delay, inefficiency etc. in the government administration also create various obstacles in the development of the catchment area. The quality of treatment deteriorates, in some places the treatment and projects are shown only on paper. Also, due to problems like variability of rainfall, lack of subsidy, delay in it, lack of water literacy etc., there are obstacles in implementing watershed development treatment. As a result, the water table is getting deeper and the water problem is becoming more serious. If the water problem is to be solved, then it has become necessary for the government and government to pay special attention to watershed development and be accountable to the people, and implement plans, programs and treatments in an efficient, effective and transparent manner.'

Both weather and monsoon rainfall are predicted to become more erratic and erratic globally in the future. It means that even though the total rainfall is the same during the monsoon season, the pattern of its fall has changed. Sometimes it rains heavily and there is a deluge, then there is a break for many days. This will reduce groundwater recharge. The catchment area is the link or joint between the rain and the ground water and river water produced from it. And alternatively, will come in water resources. Instead of sitting idly by because the government will do everything, people should take the initiative and develop the catchment areas. For that, a water literate and groundwater literate society should be created that knows the importance of water resources. Water should be the focal point while planning development in a water literate society.' (Limaye:2017:10)

In the future, large dams, small dams, drain dams, underground dams, percolation ponds, farm fields, embankment, afforestation of watershed areas, protection of water from wells and borings from pollution, groundwater recharge, sewage treatment and reuse, obtaining fresh water from drinking water, reducing Water needs to be managed in India with the participation of the government and the public through plans and actions on many fronts such as growing crops

that give more energy using water, developing varieties of crops that can be improved using less saline water. There is a need for this not only in India but in all the nations of the world, especially in the developing nations.' (Limaye:2017:25)

The increasing number of wells and borings every year, resulting in increased abstraction, lowering of ground water level, irregularity of rainfall, resulting in less recharge of ground water during monsoons, increasing pollution of ground water due to waste water from industries and villages as well as cities and encroachment of sea water on ground water in coastal areas, Faced with all these crises, how will it be possible to use the ground water resources in the long run is a serious question not only for the developing countries but also for the developed countries.

Drought Concept:

The average rainfall of a village or section is determined by taking the average of the rainfall in 30-35 years. If the rainfall is only 85 percent of the average rainfall, it is called deficit rainfall. If there is 75.80 percent rainfall, it is called drought. Due to lack of rain, foodgrains, vegetables, fodder for animals and drinking water are becoming scarce.

Although drought means bad time, drought is a long period of months or years of unavailability or severe scarcity of water and thus food sources. Droughts can be caused by disruptions in the ecological water cycle caused by sudden changes in climate, deforestation or volcanic eruptions or wildfires. Due to lack of food and water during drought, most of the living beings including humans have to face crisis. Where there is drought. Productivity, rehabilitation of that place is very difficult. It may take years to restore life there.'

'Drought has been a fact since ancient times. There is a story in the Bible about a Jewish administrator named Joseph advising the pharaoh of Egypt on a famine relief project. From then until the twentieth century, there were droughts in many places in the world. Droughts have continued since the Buddha's time. There have been many droughts since British rule. Earlier droughts, constant fighting, and natural causes occurred. But now the reason for drought in India is lack of rain. A total of twelve major famines occurred during the reign of the East India Company; But the company government does not seem to have taken any action on it. After that, severe droughts occurred in the years 1865, 1943, 1968, 1972, 1977, 1996 and 1999 and caused immense loss of cattle, people and property. Lack of rainfall for 2-3 years in a row, feeling of restlessness among people, increase in beggars, increase in unemployment, increase in thefts and robberies etc.' (https://vishwakosh.marathi.gov.in/Duskal)

A drought is a period in which rainfall is low. According to the Oxford dictionary, 'a drought is a period when the weather is dry and there is not enough water available to meet people's needs.' (Oxford Advance Dictionary: 1955:90)

Due to the changes in the environment since the last four years, this situation is being created again and again. The severity of this drought is in the Marathwada division of Maharashtra. 8,522 villages in Marathwada are drought-affected.' As a result of which the statistics of farmer suicides are increasing day by day.

The following are the causes of water problems in rural areas due to drought. Ecological imbalance caused by deforestation and pollution. Politics and corruption in water management, diversion of water needed for agriculture to industrial sector, lack of rainwater harvesting and recycling techniques, sub-sisting agriculture and wrong cropping practices adopted by farmers, neglect of local level water resources and water management are basically reasons for water conservation among rural people. And in terms of storage, there is not enough awareness. Due to which the water problem is becoming serious day by day.

Crop problems and farmers' problems and suicides caused by drought were widely discussed; But there does not seem to be much discussion regarding the measures taken to prevent drought, the measures taken for water conservation, the measures taken for water recharge. (Government of Maharashtra: 1999:856)

Looking at the drought situation in Marathwada, the drought in 1972 is being remembered. In 1972, although there was only an abundance of water, the three problems of employment, food grains and fodder for livestock had arisen. This year, due to the addition of water to these three problems, the situation was even more serious than in 1972.

More area of Marathwada than Adhya is continuously prone to drought. The productivity of crops in this area depends on rainfall. It is seen that the variability of rainfall is increasing in the background of global climate change. Sustaining crop production in dryland areas is a major challenge due to increasing problems like late arrival of rains, intermittent periods of rainfall, heavy rains, deficient rains.

Drought can be of two types dry and wet. A certain amount of rainfall is required by the topography for living creatures. If the rainfall is less or more than required, dry or wet drought occurs. Wet droughts are less harmful to organisms; But dry drought is very dangerous. Because in dry drought there is scarcity of both essential things like food and water. The horrors of drought are truly staggering. In the condition of drought, the behavior of man reaches a lower level than that of animals, all the moral values become a mess. Relationships dissolve and everyone struggles just to survive.

Indian Agriculture Commission has mentioned three types of droughts.

1. Meteorological Drought
2. Hydrological Drought
3. Agricultural Drought

As a result of all the above types of precipitation, rivers, streams, springs, ponds and other water bodies dry up. The ground water level goes down and there is a drought of food grains and other food due to the loss of crops in the fields.' (Bhandarkar: 2010:191) There are three types of droughts. 1. Dry Drought: It is caused by no or very little rainfall. 2. Wet Drought: It is caused by excessive rainfall. 3. Famine of food grains: rains come, fall enough; But in terms of crops, the season is unseasonal, so the crops are not harvested even after the rains.

Wet Drought: 'Drought said that water shortage stands in front of the eyes. But too much water is a different drought. It rains so much that the whole land becomes marshy. Roots of standing crops begin to rot, leaves turn yellow, rivers continue to overflow with floods. Home is the only shelter. Roads also become drains. Traffic was disrupted. The crop may have come on grain; Then the grains start sprouting. Ola drought is a condition where water is not available even for drinking due to turbidity.' 'Flood is a man-made problem that can be rectified with effective and sustained efforts. If that is done, this excess water will have to be blocked somewhere. Must be stored. It has to be stopped from entering the river bed. This will prevent flood. At the same time, wherever this water is injected, that water can be used. A new path to prosperity may begin. If the vessel filled with silt in the river is dug to some extent and the silt removed, the river will resume the flow of water that had stopped. And the ground water level will start rising again.' (Dharashvikar: 2015:35)

Drought: A dry drought can last several years with below-average rainfall and above-average temperatures. Crops die due to lack of rainfall and excessive temperatures in agricultural areas. Because the land becomes dry due to lack of water. The fires that break out in the forest spread far and wide. Sometimes if the land becomes barren. It is difficult to grow crops again on such land. Rivers, lakes, wells dry up. Water is not available even for animals to drink.

"We have to face more serious problems in dry drought than in wet drought. Because along with food shortage, water shortage increases. Especially there is a severe shortage of drinking water and fodder for animals.' **Dharashvikar:2015:90 -** There are three types of water scarcity. If the per capita availability of water for all uses falls below 1000 cubic meters per year, it is called demographic water scarcity. In the second case, if more than 40 percent of usable water is actually used, it is called technical water scarcity. The third type is natural water scarcity. Water scarcity occurs in regions where annual evapotranspiration through wetlands and vegetation exceeds annual rainfall. Water scarcity can be more or less severe in different parts of a large country like India. Many such droughts caused untold damage. Many measures were planned at the government level. In order to overcome the continuous drought, along with the government, many charitable organizations are also making efforts for drought relief. The main organization we are studying is the Pani Foundation Water Cup competition.

History of Drought in Maharashtra: Many mentions of drought in ancient and medieval India are found in literature such as Vedas, Ramayana, Buddhist Jataka Katha, Kautilya's Arthashastra, Abhang of various saints etc. 1396 to 1408 Durgadevi Famine This drought lasted for 12 months and the people of the Deccan Plateau had to migrate to Mawla Gujarat on a large scale. There are some mentions of famine in Buldhana and Wardha districts from fourteenth to seventeenth century. With the expansion of British power, the extent of famines here increased in severity and frequency. In just 93 years from 1765 to 1858, India experienced 14 major droughts and four severe shortages. The government also described the drought of 1899 - 1909 as India's worst drought of the 19th century. In this, more than 10 lakh victims were killed, 20 lakh animals died, 2 crore 80 lakh people were affected by drought and 46 lakh people were out of work due to drought. Even in this, the entire Maharashtra ran away. Therefore, the government had to appoint three drought commissions in 1880, 1898 and 1909. The government began to feel the danger of mass public agitation over the issue of drought.

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