Management of Water Resource in Drought Prone Area

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Abstract:
In this paper an emphasis is given on the management of water specially in drought prone area in Maharashtra. From last few years state is facing scarcity of water due to uneven rainfall accompanied by mismanagement of water. The severity of problem is increasing day by day. It is a challenging task to supply water for the vast population along with agriculture and industrial area. we can deal with the problem of security only with vision and planning & proper management of water.

Keywords: Drought, Uneven Rainfall, Flood, Irrigation, Management

Introduction:

Water is the fundamental need of every living creature. It is a valuable national recourse so maximum utilization of available water resources and their conservation is immensely important. The demand and supply of water has to be taken into consideration for water management. Rain is the primary source of water. Rain water is available from rivers, canals, tanks besides underground resources like wells and bore-wells.

97% water is present in oceans while 2% water is in ice-bergs and only 1% water is available for living beings. Among this 1% of water 70% water is utilized for farming 25% for industries and 5% for household.

India has 4% of total water available in the world and about 17% population of the world resides in India. Approximately 113000 cubic k.m. of water is available through rain water and snow-fall from which 72000 cubic k.m. water is evaporated.

Origin of the research problem:

In recent years, it seems that the pattern of monsoon is changing. There is a radical change in the pattern of arrival of monsoon and its journey across the northern region. Monsoon covers its area before its regular time table and it stays back till last week of September from last few years. In most of the areas of Maharashtra, the rainfall in first ten days of October was recorded more than that in the month of June this year.

Sr.No. (1 to 9)	Districts of Maharashtra	June	October
1	Pune	35	120
2	Nashik	37	90
3	Mumbai	177	124
4	Satara	69	194
5	Sangli	45	77
6	Solapur	41	117
7	Ahemednagar	5	49
8	Kolhapur	71	89
9	Parbhani	82	89
10	Aurangabad	77	56

Table1 Comparison of rain fall in June & Oct. 2012 (rainfall in mm.)

This year Maharashtra state received only 89.1% of rainfall. Of 33 districts, nearly 10 districts received rainfall between50% to 75 %. Around 15 districts received rainfall between 75% to 100% while 7 districts received more than 100% rainfall.

Jalana, Aurangabad, Beed, & Osmanabad are the most affected districts in Maharashtra. The state govt. has announced total 6250 villages as drought affected regions among which 753 villages are from Aurangabad district, 970 from Jalana district while Beed & Osmanabad share 685 & 438 villages respectively.

The shortage of fodder across the state has made the situation more dreadful as the state has to spend Rs. 6 crore daily on fodder, the bill so far is pegged at Rs. 235 crore.

Objectives:

1) To study the management of water in the light of uneven distribution of rainfall.
2) To identify the importance of water resource management in drought prone area.

Hypothesis: Management of water is the key of fight against drought and situation arising from uneven distribution of rainfall.

Data & Methodology:

The present study relies upon secondary data concerning rainfall & drought affected area. The data was collected from official web-site of Pune Vedhshala the information published in Newspapers & Magazines was also obtained along with certain books.

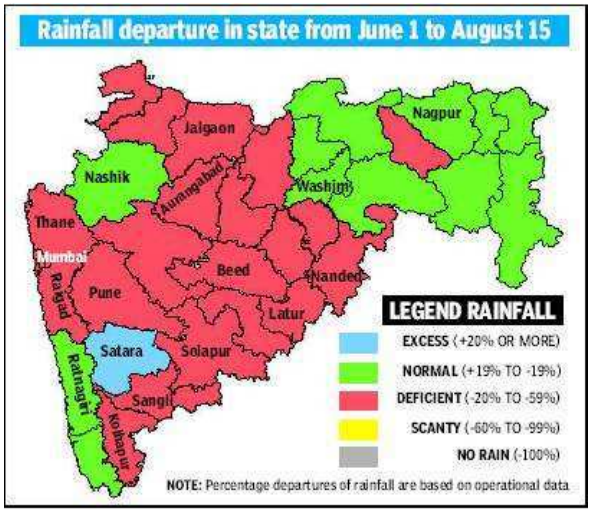
Scope: Basically water is used for agriculture, drinking, power generation & industry, but unfortunately there is lack of vision & planning. East & North east India is blessed with perennial rivers but in South, rivers like Penna has less than 300 meter of water per head. In eastern region flood like situation is created due to heavy rains in August & Sept. in India heavy rainfall & snow melting in Himalayen region causes floods in plains of north India such as Ganga & Yamuna rivers basins in the north east. The heavy rainfall & cyclones in the lower catchment area of west Bengal & Orisa results devastating floods. Frequent rainfall in the

hilly regions of Assam causes frequent floods of high magnitude through Brahmaputra River almost every year whereas certain regions have to face drought every year so, it is very much important to manage water resources for growing population.

Drought in recent past; From 2001 to 2009, the state had been facing drought like situation or at least water scarcity on a continuous basis. In 2001, about 20 districts in the state faced drought like situation.

All these years Solapur, Ahemednagar, Jalana, Pune & Chandrapur were some of the worst hit districts. In 2003 Maharashtra was in the grip of acute scarcity conditions for the third successive year. During 2000-01 & 2001-02, Kharip & Rabbi crops in large areas of the state were adversely affected due to erratic rains & prolonged dry spells. The state than declared a situation of scarcity in about 12000 villages.

In 2009. With inadequate rainfall in many parts, the state once again faced severe scarcity of water & fodder. Of the 353 sub districts 221 were declared drought hit & scarcity hit. Sangli, Satara, Solapur were identified as the worst hit areas.



Water Scarcity: Reservoirs across the state have an average stock of 52% (62% in the corresponding period last year) because the average rainfall recorded is mare 8901% (98% in corresponding period last year) Reservoirs in the Marathwada revenue division have a water stock of only 9%,Nashik has 41%, Amaravati 56%, Pune 61%, Konkan has the highest at 82% , so it is a huge concern to manage the water supply in the reservoirs till next June.

Water resource management: Water shortages are getting worse as surface water source are not utilized carefully & as aquifers are depleted. Water conservation is the most effective means of increasing fresh water supply. Rational use of water resource by reduced use, recycling, reuse in activities like irrigation, industrial processes & domestic use can be easily implemented.

Water conservation measures:

- Retention of rainwater from surface through construction of reservoirs, tanks.
- For ground water recharge, construction of check dams, percolation tanks etc.
- For agriculture water management use of lift irrigation, drip & sprinklers for irrigation.
- Reclying of waste water after proper treatment, rainwater harvesting, conservation of natural wetlands, recharging ground water, watershed management, reduction in water pollution.

Recommendations:

The rivers in Maharashtra are becoming more & more dull & polluted day by day. The rivers are rapidly dying because of the pollution, the vast wood cutting, the dissertation of earth & too much withdrawal of sand from them. In cities it is seen that the canals & small rivers & lakes are intentionally and intensively damaged. The banks of the rivers are severly damaged.

At the fountain rivers are pure and unpolluted but as they flow towerds cities they become a major cause of diseases like colera,etc. the bio-pulluted garbage occurs in the rivers Krushna near Sangli, in Pune Mula is much polluted to moss,a paculier type of pollution again occurs in Bindusar & Kundlik at Beed & Jalana, the dead fishes occur on a large scale in Panchanga at Kolhapur.

Horrible incidents of pollution are taking place not just in the rivers of Maharashtra but across the country. Some important and big rivers from Himalaya that enriched the lives of Indian people are becoming narrow & rapidly dying from last 500 to 600 years. In 2050, it is predicted that 8% to 10% water saturation will be lessened & upto 500 billion cubic meter of water will be under scarcity.

1) Indian scientists should study deeply the existence of rivers generated in Himalaya.
2) Govt. should take steps for conservation of Himalayan rivers ,it will help to control floods these rivers are so important because they can produce 1 lakh kilo watt of electricity by which some states of the country would be enlightened.
3) Rain water is to be stored in such way so that underground water level can increase & rate of evaporation can be minimized.
4) Prohibiting cluster of wells in one area as well as deep digging of wells
5) Water pollution has to be minimized by preventing mixing of drainage water in the households & chemicals & other effluents in the water.
6) Join river project should be introduced by the central govt. of India.
7) Small irrigation schemes are very much advantages because it save the money & time of construction.

8) The proper planning of watershed management is nee ded, prohibition of water flow, its percolation should be done for saving water.
9) Number of methods should be applying for conservation of water, like Tube well recharge, Nala bunding, Construction of dams.
10) In addition to the development of water resources awareness among society should be created.

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