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TITLE : Applicability of Traditional wisdom in water in Konkan region of Maharashtra State.

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Introduction:-

The natural resource, WATER, is of vital importance for human and animal life, maintaining economical balance and achieving economic development. The scarcity and diversity of water resource in different regions and its equitable and sustainable use has become a matter of vital importance. The distribution of water resources is quite uneven over a large part of Maharashtra state. The large area of the state has water deficit where as a small part is bestowed with abundance in water. Since independence end particularly after formation of State of Maharashtra in 1960, large investments have been made in water sector. Though it has achieved increasing irrigation, potential, enhancing drinking water supply problems exist in Urban and Rural areas in respect of water supply thought the year.,.

Water Management:-

Water has to be managed adopting integrated multi-sectoral approach to the resources planning, ,development and management, on a sustainable basis. As per the usages, the management system for irrigation, domestic, industrial and ecological will requirements will differ inter-state. Nevertheless, broad priorities have to be decided, among drinking, sanitation, live stock, industrial, commercial, agriculture. The various departments of the State Government, such as irrigation, water supply and sewerage Boards, Jeevan Pardhikaran etc. manage to satisfy the needs of the above usages. However broadly,it is to be dividing Urban and Rural. The adaptability of traditional wisdom will not be discussed in this paper for Urban. . Traditional wisdom methodologies and management has to be the considered for rural areas only. The author desires to present use of various old practices for a sustainable water usages in rural areas such as villages and padas in Maharashtra State, with particular reference to Konkan region.

Population Scenario in Maharashtra State:-

As per the census 2001 the urban population of Maharashtra State was 410 lachs and rural 557 lakhs. This includes all Corporations, councils, villages, padas etc. The Urban population can be said to be 42 – 45% of the State population. The State comprise of 35 districts, around 43,000 villages, 46,000 padas, The rural population increased form 161 lakhs in 1901 to 557 lakhs in 2001. By classification, population wise, the State had in 2001, 326 lakhs in class I cities (1 lakhs above), 27 lakhs class II cities (50,000 above), 38 lakhs class III (20,000 above), 13 lakhs class IV(10,000 above), 3 lakhs class V (5000 above) and .30 lakhs class VI (below 5000). Konkan is considered as most urbanized Zone (24% rural 76% urban) as against Aurangabad

least urbanized (62% rural & 30% urban). In the remaining Zones, Nasik, Pune, Amaravati and Nagpur, distribution of population is more in rural and less in Urban areas.

Investment scenario in Maharashtra State:-

As regards drinking water supply, the Maharashtra Jeevan Pradhikaran (MJP) formed in 1979 made provisions from Rs.40 cr. Per year initially, increased to Rs.1000 crores and has now been providing about Rs.350 cr. To Rs.400 cr. This provision, both including urban and rural comprise of about 40 to 60% funds for rural areas. The ambitious project of "no tanker supply" in the State envisaged during 1995 to 2002 about 6400 schemes in the State at a cost of Rs.9500 cr. Including both pipe & non pipe schemes. The outcome of this project by way of

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expenditure was about 50%. This provision meant the average cost per scheme about Rs.1.5 cr. varying from a few lakhs to a few crores per scheme. The investment to be made both by Central and State Government was planned by "saving schemes," funds to be diverted to the project. This project mainly concentrated on assets creation, totally neglecting operation & maintenance aspects (O&M). The project resulted in limited improvements in villages and padas in respect of water supply. Moreover the change of Government also resulted in a setback to the project. Hence unplanned investment, delays in execution, neglected (O & M) has resulted "poor success" for rural water supply in Maharashtra.

Classification based on resources availability:-

The Maharashtra State rural areas can be divided into 5 Zones, Konkan, Western Maharashtra, Vidharb, Marathwada and North Maharashtra. The resources availability, population, investment made are detailed in Table 1.

* Table 1.

Zones		Population Percent of State	Investment during 1991 to 2001 Percent of State
Konkan		30	10
Western Maharashtra		20	15
Vidarbha		20	30
Marathwada		15	30
North Maharashtra		15	15

* ALL FIGURES ARE INDICATIVE HENCE NEED NOT BE QUOTED ELSEWHERE.

As regards surface water resources the areas in the State can be divided as "highly deficit," "deficit," "normal," "surplus," and "abundant." As regards ground water supply the areas in the State can be divided as "under developed," "scope for development," "less scope for development" and "over exploited." The adoptability of traditional methods in different Zones of the state can be decided, based on the category in which a particular area falls.

Causes of failure in Rural Areas:-

Unrealistic capital intensive schemes planned and designed by Government departments have not been useful to the people in villages and padas. As the schemes planned have not been yet taken up due to paucity of funds, the scheme executed do not sustain due to neglected O & M and less

expertise with local self Government units in rural areas. The villagers in rural areas are miss-leaded for bringing piped water supply. But in most of the cases schemes do not materialize. Moreover, in rural areas micro level planning of water supply schemes and participation of local community was never thought of. Due to these causes of failure there is a need to revise the approach and plan for less capital intensive, easy O & M in the villages and padas. This will give immediate relief to the rural areas in the State.

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Few methods of traditional wisdom and few case studies:-

----- **Rain Water Harvesting (RWH)**Underground irrigation system at AINY, Tal. Khed, Dist. Ratanagiri---- constructed in the year 1710. The system consists tunnel constructed in literistic stone of an underground masonary laid in lime.
Length of tunnel is 790m. There is provision of air ducts at every 20 m all along the length of the tunnel. When tunnel opens 790 m flow of water is conveyed by surface channel constructed in lateristic stone mesonary laid in lime.
The length of surface channel is 1360 m.

----- **Talab / Pond** ---- For every 150 population Talab was developed by community and whole economy, ecology etc. was governed by very existence of Talab. Under the Nal-Pani Yojana wisdom of Talabshas been practically vanished.

----- **BAVKHAL** ---- A small dug out well in depression in konkan region serves as drinking water source to many, in remote padas, during monsoon period.

----- **Plantation of trees** ---- Normally in village / padas bathroom/kitchen water serves as a good source of water for plantation such as Alu /Kordal/ Banana / Vekhand/ Nirgudi etc.

----- **Recharge of well**---- Well water is used for drinking, taking bath, washing cattle, colth, utensils etc. All these activities used to be carried out near the well. Since all these activities require good amount of water, the water utilized gets percolated around well area. Hence there used to be recharge of well every day. Since invention of electricity and pumps many such activities have shifted away from wells , hence recharge near well, is getting reduced.

Adaptability of traditional wisdom in Konkan region:-

This has abundant water resources but mostly wasted in runoff to the sea without proper storage and usages. The MJP normally formulate the water supply scheme for pipe water supply involving costly pipeline, pumping and costly storages. After the initial survey by GSDA for a possible bore well, the Zilla Parishad with the advice of MJP prepared a scheme for a cluster of villages and padas. Even though few scheme have been implemented, due to neglected preventive maintenance and other reasons, the success is not up to desired mark. In many part of Raigad, Sindhudurg and Ratnagiri districts, the people face scarcity of water from March to June. The pipe water supply becomes less importante to villagers, because of availability of precipitation from June to September and natural storages from September to December. It is suggested that construction of village ponds in such areas as traditional methodology should be immediately adopted. This methodology would provide a
a sustainable resource of the nearby population for their needs other than drinking purpose. A well constructed near to the pond is likely to make available a natural filtered well water for drinking purpose. The rooftop rainwater harvesting with provision of suitable storages, another traditional method, will help the sustainable drinking water supply also. Though appearing obvious and simple methodology this has been long neglected in Konkan region. This methodology will have to be adopted with due regards the quality of water particularly for drinking purpose. This methodology will certainly incurre less expenditure by avoiding capital intensive and costly operation and maintenance schemes of the State Government.

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Case Studies of Traditional wisdom in Konkan Region:-

1. Village AINS in Khed, District Ratnagiri

The 250 to 300 years old water supply scheme is a classic example of availing a perennial stream. This unique system had been constructed during Peshwa era in the year 1710. There is no specific source of water. But the system consisting of under ground tunnel constructed in lateritic stone masoniry passes perennial stream and channel in the tunnel intercepts underground flow which opens to the river. Hence initial loss quantity goes on increasing. After tunnel of 790 m length, the flow is conveyed by surface channel of 1360 m. The slopes are quite steep. The group of families availing of this water by virtue of ownership collect the water in tanks and use for domestic purpose since last 250 to 300 years. This is a unique case of commonly available in Konkan, naturally recharged under ground water availability, through tunnel and other conveyance system. In absence of this system villages would have been compelled to lift the water from river at lower level. The system is quite useful and replicable in many parts of Konkan region if planned accordingly. Such reservoirs of lateritic stone area should be explored in Konkan region. This traditional wisdom should be exploited.

2. Morwadi Part of Pathraj Grampanchayat, Karjat District Raigad.

A storage well about 100m away from wadi by the side of stream (Bavkhal) has been constructed by villages to avail of water during monsoon, avoiding to fetch water from regular dug well about 1 km away from Wadi. This naturally filtered water from Bavkhal is used by the

community in monsoon. This traditional wisdom helps to fetch water during rainy season near to the community. This is possible in Konkan region.

3. Village Phanas Taluka Dapoli, District Ratnagiri.

As back as in 1950 Mr. Pethe, a retired teacher developed storage in kitchen to use roof top rain water in monsoon. This avoided bringing water from nearby well, around 100m from house. Before retirement piped water supply was available to him in urban area. After shifting to the villages after retirement, he used technique of Roof top rain water harvesting. Hence, need induced him to use traditional wisdom. However existing other villages continued to fetch well water from distance without thinking of traditional wisdom. There is a need to change the mind set of people in Konkan region.

4. Village Savaroli, Panvel District Raigad.

An industry " S.H.Kelkar & Co." has recently constructed a tank of 50 m dia and 3 m depth. This is sufficient for their factory use after treatment. Pitching for sides and bottom of the tank has enabled to stop percolation. The losses due to evaporation were taken into account. This tradition wisdom has saved costly water supply and factory because self sufficient by using tank as a traditional wisdom in Konkan region.

5. Dahanu Road, Dahanu, Thane

Since last 50 years Roof top rain water harvesting by storage tank, underground, while constructing the houses has been adopted. This is a classic example of traditional wisdom. This should be adopted in Konkan during planning of houses itself.

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6. Village Devrukh, Rajapur, District Ratnagiri.

About 100 years back Vasudeo Chitale developed several ponds as traditional wisdom for storing the water.

7. Vasai, and Coastal region, Vasai District Thane.

In last 10 years all villages have diverted Roof top harvesting in dug wells. This has helped reducing saline water intrusion. This traditional wisdom can be used in Coastal region of Konkan.

Traditional wisdom as sustainable methodology in Konkan Region

Considering population scenario of Maharashtra and Konkan, out of about 10cr population of the State, 3cr stays in Konkan out of which about 75 lakhs in rural Konkan. In most of the villages and Padas the community has to travel long distance to fetch water from JAN to May. The Government scheme for providing piped water supply assume about Rs.2000/- per person for schemes, which amounts to requirement of Rs.1500/- cr.for Rural Konkan area. The scheme using traditional wisdom methodologies envisage storage, construction of Bavkhal, ponds, tanks, and Roof top rain water harvesting. Considering a unit of 20 houses with 100 persons, storage requirement from rainfall in Konkan region for period from February to May envisages 600cu.mt.of excavation. Hence such a traditional method would at the most cost Rs.1 lakh for this unit. Depending on local situation the traditional method may require even less amount. With community participation many requirements may also get reduced for the assumed unit. The advantage of this philosophy is that costly schemes are not required . What is needed is willingness to accept this philosophy with well managed program by the Government as well as helping NGOs.

Summery

----- It is possible to adopt the traditional methods even in today's situation and population in villages and padas in Konkan region.

----- Proper planning and designing of such methodologies should be prepared by local self Government with the help of Boards and Corporations. This has to be done with due recognition to the **quantity and quality** of the water.

----- The Master Plan is required to be modified suitably with due recognition to possible investment.

----- The traditional methodologies will bring down the investment level by at least of 50% and also make the scheme possible and implementable.

----- The local bodies have to execute these works by taking financial contribution and Shramadan through villagers. The period of 5 years for executing through villagers. The period of 5 years for executing such schemes with traditional methodologies will be great help to the villagers in rural areas in Konkan region of Maharashtra State.

----- Capital intensive schemes of pipe water supply may thereafter the implemented and adopted in next 20 years.

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