

Evaluation of Water Management by Grama Panchayaths – A Study at Mangaluru Taluk

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Abstract- Groundwater is the primary source of water in Grama Panchayaths in Mangaluru taluk. Surface water is not utilized properly. Excessive dependency on groundwater has already resulted in groundwater depletion, poor water quality, etc. Therefore, Grama Panchayaths should have a plan to make use of available surface water through proper projects. Existing ponds/lakes have to be protected and well maintained. This will also help to recharge the groundwater. Taluk is blessed with many rivers and streams. Joint projects to share the river water among the neighboring villages should be judiciously planned and implemented.

Keywords: Grama Panchayaths, Mangaluru Taluk, Potable Water, Groundwater, Sustainable Development

INTRODUCTION

Inadequate access to water is often referred to as one of the biggest factors limiting development in India. The demand for water is increasing day by day not only for agriculture, but also for household and industrial purposes. Freshwater sources are being heavily exploited to meet the water demands. As surface water sources fail to meet rising demands, groundwater reserves are tapped, often to unsustainable levels. Almost all cities and villages depending on groundwater are faced with the rapid depletion of their water tables. Over extraction of groundwater in coastal cities has led to salinity intrusion in the coastal aquifers.

Mangaluru taluk though receives highest rainfall (around 3500 mm to 4000 mm), faces drinking water scarcity in every summer. This is because the entire rainwater is collected in masonry drains from houses, streets/roads, etc. which is then taken to the sea instead of recharging the ground water aquifers. The groundwater available used during summer make the aquifer empty.

In the light of above background, a study on rain water

management by Grama Panchayaths at Mangaluru (formerly, Mangalore) Taluk in Coastal Karnataka was undertaken (Bala, 2012). The study focused on – Perceptions on water issues, conservation, harvesting and managing water resources at Grama Panchayaths (GPs), i.e., by rural local bodies, within the geographical limits of Mangaluru Taluk. There were 49 Grama Panchayaths in Mangaluru taluk comprising 100 villages in total. In the study 35 GPs (71.4%) comprising 80% of the villages in Mangaluru taluk were surveyed. In the present paper an attempt has been made to analyse some of the potable water management issues and challenges faced by GPs as identified in the survey.

Groundwater - the key source of potable water:

Rural Mangaluru taluk uses bore wells as its primary source of potable water (82.8%) and open wells are used as secondary sources (77.1%). On analysis of both primary and secondary sources of water, it is clear that overwhelming majority (97.1%) of the rural local bodies depend on groundwater (bore wells and open wells) as their main source. Surface water (rivers, ponds/lakes) is not used as main source by any Grama Panchayath (GP) and only one in three of the GPs in rural area use surface water as secondary source of water. Hence, it is evident that for drinking water GPs depend almost completely on groundwater. At present public ponds and lakes are found in very few villages of Mangaluru taluk. The existing public ponds and lakes are not properly preserved and in majority GPs (75%) pond water is not used for any needs of the village.

Depletion of Water Table:

This excessive dependency has resulted in the depletion of the groundwater table in rural area. The minimum and maximum depth of bore wells is reported at 120 feet and 650 feet respectively. To test whether the mean levels of depth of bore wells

(minimum and maximum) significantly differ across different locations an ANOVA procedure is carried out in the study. Results reveal that there are no significant differences in the mean levels of depth of bore wells across different locations. Therefore, it may be concluded that groundwater depletion reported in the study is common in entire rural taluk.

Quality Issues:

Due to the depletion of water table, majority (82.9%) of the respondents revealed that the bore wells in their area are already dried up. 54.3% of the respondent GPs reported that open wells are dried up and about 57.1% of the GPs reported that even ponds/lakes in their village are too dried up during summer. Groundwater depletion has also resulted in saline water and undue mineral contents in deep bore wells making water non-potable. Such incidences of poor water quality are reported from 45.7% of the GPs.

Potable Water scarcity at Villages:

An attempt is made to identify the perception of GPs on water availability during summer. It is disturbing to note that majority, i.e., 71.4% of GPs are already in scarcity zone. It is also observed that in an overwhelming majority (85.7%) water scarcity had begun in recent years. In the entire rural taluk water scarcity is found after rainy season. Alarming in 22.8% of the GPs scarcity begins early in winter (November - January) itself and in the remaining cases (77.2%) scarcity starts in summer (February – May). The major reasons for this water crisis, as perceived by respondent GPs, are groundwater depletion (77.1%) and decreasing water sources (55.9%). Even though the entire taluk receives heavy rainfall during monsoon, these villages face water shortage in summer. Thus, it can be concluded that water availability in summer is not directly related to rainfall received in the region.

Inadequate Water Management:

It is observed that majority (51.4%) of the rural taluk experience a general trend of flood situation during monsoon due to heavy rainfall from south-west monsoon. Comparison of flood situation and groundwater depletion position reveals the alarming fact that even after heavy rainfall during monsoon, almost all (97.1%) GPs have the problem of groundwater depletion in summer. Chi-square test is

used in the study to identify the association of flood situation and groundwater depletion. The results of the test also disclose that there is no association with flood situation and the groundwater depletion in the GPs. It is obvious that absence of thoughtful efforts on the part of GPs in the taluk to recharge groundwater through various rain water harvesting techniques in villages is the primary reason for the contradictions of flood in monsoon and scarcity in summer.

Awareness Design:

Organising awareness campaigns to enlighten the villagers on various local water issues, traditional harvesting techniques, etc. is very essential for proper water management and community participation in the projects. Only 34.3% of the GPs have organised awareness campaigns. However, it is observed that in almost all cases ‘awareness programme’ merely mean just giving information and clarifications on local water issues in Grama-Sabah meetings to villagers. Well organised efforts to create water conservation awareness among the villagers by conducting workshops, street plays, field visits, releasing books/CDs, etc. are not initiated by any GPs.

Execution of Water Schemes:

In the survey, an attempt is made to identify the various schemes of Central and State government implemented in villages by GPs towards water harvesting, water conservation, watershed development, etc. in the five years (2007 to 2012) period. Out of the 35 respondent GPs, only 19 respondents (54.3% of the GPs) reported the implementation of a few Central and State government schemes. Of the reported schemes, National Rural Employment Guarantee Act (NREGA) is implemented by 31.4% of the GPs to water conservation activities. In 4 GPs of the taluk Integrated Watershed Management Programme (IWMP) has been implemented in phases. Obviously, the water conservation activities, watershed schemes are not implemented convincingly by GPs in the taluk. In some instances, comprehensive information on watershed activities, grants utilized on various schemes and projects are not reported by the respondent GPs during this study.

CONCLUSION AND SUGGESTION

Groundwater is the primary source of water in GPs in Mangaluru taluk. Surface water is not utilized properly. Excessive dependency on groundwater has already resulted in groundwater depletion, poor water quality, etc. Therefore, GPs should have a plan to make use of available surface water through proper projects. Existing ponds/lakes have to be protected and well maintained. This will also help to recharge the groundwater. Taluk is blessed with many rivers and streams. Joint projects to share the river water among the neighboring villages should be carefully planned and expeditiously implemented. State government and district authorities should encourage such joint projects with suitable financial and technical support.

Mangaluru rural taluk is neither having major nor having minor irrigation projects to tap the rain water. There is a need to protect and rehabilitate traditional water harvesting techniques and structures like construction of 'Kattas' (local conventional small earthen dams) to streams at villages. These traditional small structures recharge water tables effectively. There are research evidences that village-scale rain water harvesting yields more water than big or medium dams. There is also vast extent of common land, generally classified as 'fallow' in village records, which must be converted into collection areas for rainwater harvesting by GPs. These are some of the best ways of augmenting local water resources for local needs. Comprehensive actions at all levels are needed as WATER is a key factor for any sustainable development.

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