

RESEARCH ARTICLE

## Water Management Policies in India: Current Trends and Future Policy Options

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### Abstract

Water is an important resource in the context of socio-economic empowerment of people. In India, more than water shortage, water wastage is a phenomenon in all sectors especially in Agriculture. To address water wastage, water use efficiency measures are advocated and for water shortage, the infrastructure gap through watershed approach has been carried out. Since 1970s, the soil and water conservation measures have been initiated by Government of India (GoI). After 1990s and 2000 significant changes in the policies have been brought out by both center and state governments. At this backdrop, the new watershed common guidelines was released in 2008 and revised in 2011 is taken for applied research study in 40 watersheds of Kancheepuram District, Tamil Nadu. The study revealed that people are accepting this initiative as need of the hour which is required to sustain agriculture and water requirement of various segments. This study also provides policy recommendations for the future watershed management in India.

**Keywords:** Watershed management, agriculture, watershed policies, watershed guidelines, people's participation.

### Introduction

Water is the basis of existence of living beings, in terms of drinking purposes, food production and also in industrial uses in varying proportions. In fact, water is used primarily for irrigation (75-80%), Industry (10%) and drinking and miscellaneous purposes (10-15%). India accounts for 15% of the world population and 4% of the world's water resources. In the entire world, India faces a major crisis of water during recent times. This crisis threatens the basic right of drinking water of citizens; it also put the livelihoods of millions at risk. The demand of a rapidly industrializing economy and fast urbanizing society like India come at a time when ground water table falling and water quality issue also has increasingly come to the fore. As far as excess water management is concerned, flood management strategies in India, no longer seem to provide an adequate answer to growing flood frequency and intensity. As mentioned earlier, 75-80% of India's water is used for irrigation. The two main sources of irrigation are canals and groundwater. The relative contribution of canal irrigation has been steadily declining over time while groundwater especially that extracted through tube wells has rapidly grown in significance over the last 30 years. But the fact is that both these sources of water are now begun to dwindle. Considering the above, it is no wonder that conflict across competing uses and users of water are growing by the day. According to Sreedevi *et al.* (2006) integrated water resource management approach should be adopted in watersheds by discarding the artificial divide between rain fed and irrigated agriculture. There is an urgent need to have sustainable water use policies to irrigated sustainable development.

According to Wani *et al.* (2008), there is a need to improve monitoring and evaluation and the feedback of information to constantly improve performance. At one or two watersheds in each district, a broad range of technical and socio-economic parameters should be measured to provide a scientific benchmark and a better economic evaluation of impact. Since, Indian economy is agrarian in nature supporting nearly 65% of its population and agriculture sector supplying raw materials to various industries like sugar, textiles, edible oils etc. and engaging 15% of Indian workforce, scarcity for water will lead to serious socio-economic implications in the country. Various measures have been attempted by multiple stakeholders to address the issue of water management. Watershed management has been the foremost approach to conservation and management of water in India since time immemorial. However, with the advent of tapping the groundwater, watershed management was not given adequate attention in the recent past and the impact of negligence in this regard has already been realized. These issues have already started affecting both the Government and community at large, thus leading to various policy changes in the Government considering the long term accrued benefits and sustainability of water management system in India. As far as watershed management is concerned, several agencies are involved in conceptualization, financing and implementation of the same, prime being the National Bank for Agriculture (NABARD) and Ministry of Rural Development (MoRD), Government of India (GoI) with respective State Governments participation.

Till recently, these watershed management projects were implemented with different policy guidelines for different agencies. However, realizing the potential conflicts arising out of differential guidelines, the GoI had recently devised a set of common policy guidelines within which, various agencies operating watersheds across the country could operate. The present study discusses the impact of common policy guidelines on the performance of watershed implemented by Watershed Development Fund (WDF) of NABARD and Integrated Watershed Management Program (IWMP) of MoRD, GoI. In the year 2003, the GoI brought about a new set of guidelines called "Hariyali Guidelines" which sought to empower the Panchayat Raj Institutions (PRIs), both administratively and financially, in the implementation of the Watershed Development Programme of the MoRD as a new initiative through Department of Land Resources. These guidelines were applicable to new projects under integrated Waste Lands Development Programme (IWDP), Drought Prone Area Development Programme (DPDP) and Desert Development Programme (DDP). Projects sanctioned after 1.4.2003 were brought under the Hariyali Guidelines.

Government of India in its budget for 1999-2000 had announced the creation of a Watershed Development Fund (WDF) with the National Bank for Agriculture and Rural Development (NABARD), with the broad objective of unification of multiplicity of watershed development programmes into a single national initiative through involvement of village level institutional and NGOs. In continuation of the same, WDF was created in NABARD with a contribution of Rs.100 crores each by NABARD and GoI. The objective of the fund was to encourage participatory watershed development. The fund was intended to be utilized to create the necessary conditions to replicate and consolidate the isolated successful initiatives under different programmes in the government, semi-government and NGO sectors, thereby all the actors are involved in watershed community, Central and State Government departments, Banks, Agriculture Research Institutions, NGOs and NABARD could act in tandem to make a breakthrough in participatory watershed development. The WDF was to be operationalized in close coordination with the Central and State Ministries as a continuum of their efforts but with a distinct identity. The GoI launched National Watershed Development Project for Rain fed Areas (NWDPA) under Ministry of Agriculture during eighth five year plan period and the guidelines were restructured in order to remove the difficulties faced by the implementing agencies and help them to undertake the works with the involvement of the local people. The restructured WARASA Guidelines were published in 2000 to govern the procedure for revised NWDPA programme. The CAPART-Watershed Conservation and Development Programme was conceived to achieve conservation and development of watershed to improve its ecological well being and thereby enhance its

productivity and life supporting systems for the betterment of the people and their environment. Watershed Conservation Programmes implemented by CAPART engaged the assistance to voluntary organizations (VOs). VOs would try and implement watershed conservation over a total area of 1000 to 1500 ha, preferably in contiguous watersheds. The village however, was identified as the basic management unit for watershed conservation and would have priority over the geographical entities in this regard. Watershed treatments were undertaken with a "bottom up" approach. While reviewing different guidelines, it was observed that although there were variations in certain components, the following areas were common for all the four programmes.

- Appointing and engaging a separate Watershed Development Team (WDT).
- In order to build the ownership of watersheds, contributions from people for treatment on private and public lands were encouraged.
- Networking and streamlining the Institutional arrangement for the people at different levels in a watershed.
- Creation of Corpus fund for long term sustenance.
- Development activities and livelihood promotion.

Considering the special features and potential drawbacks of the above guidelines, GoI realized the need for unifying all the guidelines under a set of common policy guidelines encompassing the above features and enacted the same in the year 2008 and revised in 2011. These guidelines were applicable to all agencies with modifications suiting to the mandate of the respective agencies. With this, watershed management projects implemented by Ministry of Rural Development under Integrated Watershed Management Program (IWMP) and watershed projects implemented by NABARD under WDF became key players in watershed management in India. Though common guidelines were formulated, it allowed certain degree of flexibility in the approach to delivery of watershed and left it to the discretion of the agency. It is at this backdrop, an attempt was made to study whether differential approaches to common guidelines had any significant impact on usefulness and efficiency of watershed by different agencies. In this context there are many questions that arise: How far the watersheds are useful?; how far the guidelines given by the government time to time are flexible at the field level?; how far the leadership responsible for the watershed management at the field level are capable of sustaining the programme?; how far the people participation is essential for watershed management?; and how far other citizen action groups such as Self Help Groups (SHG) are involved in the implementation of watershed management.

## Materials and methods

*Experimental design:* In order to study the objectives of the study, a well structured interview schedule was prepared.

The schedule consisted of two parts which included individual characteristics of the respondents as well as their responses to specific questions pertaining to the objectives. There are 40 watersheds implemented in Kancheepuram District, out of which 33 watersheds were studied in which 31 IWMP and 14 WDF watershed officials were interviewed. The reasons for selection of study area was based on the fact that Kancheepuram District is considered to be the district of lakes with lot of watershed activities as well as the familiarity of the researcher in the study area. The respondents were selected by simple random survey from the WDT and Village Watershed committees (VWC) and Water User Association (WUA). Kancheepuram District is located north side of Tamil Nadu between 12.13-13.1E and 79.32-80.15N. It comprises 13 blocks of which 6 blocks were Both IWMP and WDF programs implemented. The IWMP program are implemented in cluster approach where as WDF are implemented in isolated manner.

**Results and discussion**

*Study on level of awareness of the community and project implementing agencies on usefulness of watershed:* Table 1 indicate that all the respondents were fully aware that watershed management projects are useful in terms of soil and water conservation, agriculture development and other accrued benefits. There is no difference in response between WDF and IWMP watersheds in terms of usefulness of projects.

Table 1. Response of people based on their knowledge on usefulness of watershed (n=45).

Response	WDF	%	IWMP	%
Useful	14	100.0	31	100.0
Not useful	-	0.0	-	0.0
Total	14	100.0	31	100.0

Source: Personnel survey, 2013.

*Studies on influence of flexibility in watershed approach and the impact created on watershed:* While delineating the watershed area, IWMP addresses area coverage of 5000 ha under one watershed unit whereas, WDF offers flexibility in delineation even up to 500 ha. However, IWMP did not emphasize on the nature of area to be covered, WDF insists that priority should be given to dry and drought prone villages. In any case, the proportion of irrigated area may not exceed the average for the state or 30% whichever is lower. Villages with noticeable soil erosion, land degradation, resource depletion or water scarcity problems and villages in the upper part of drainage systems were accorded priority. The data presented in Table 2 gives the responses of the officials of project implementing units of both IWMP and WDF. Table 2 indicate that about 85.7% of the respondents had expressed that the impact of watershed program has been above average under WDF whereas only 16.1% of the respondents expressed that the impact of watershed has been above average under IWMP.

Table 2. Implementation performance of watershed.

Rating	WDF	%	IWMP	%
Below average	-	-	-	-
Average	2	14.3	26	83.9
Above Average	12	85.7	5	16.1
Total	14	100.0	31	100.0

Source: Personnel survey, 2013.

This clearly indicate that need based and location specific approach followed by WDF with flexibility in its policy on selection criteria plays a significant role in enhancing the efficiency and usefulness of watershed whereas the rigid policy of IWMP tends to affect the efficacy of the watershed.

*Studies on the capabilities of leadership of watershed committees in solving field level problems:* While implementing watershed projects at village level, the village watershed committees are formed. These committees play a key role in decision making by the community and the role of office bearers assumes significance. While office bearers are elected democratically by the village community, these office bearers tend to have allegiance towards political parties. However, there are also non-political leaders who are office bearers in watershed communities. The survey captured data on the ability of these office bearers and leadership with respect to decision making based on their allegiance to political party and the responses are given in Table 3. Table 3 presents the response of the respondents on their opinion about the leadership qualities of watershed committees on problem solving in watershed. Among the respondents under WDF, an overwhelming majority of 85.8% of the respondents agreed that non-political leadership were able to solve field level problems well than those with political allegiance. IWMP officials also expressed similar views (67.8%) that the watershed committees with leaders and office bearers not having political allegiance were able to solve the field level problems than the leaders with political allegiance. It could be inferred from the above that both IWMP and WDF watersheds have similar pattern of response on leadership qualities of watershed committees. It should be noted here that though the guidelines say that leaders should not owe allegiance to political parties, in reality, it is not adhered fully. A suitable mechanism should be worked out in the policy guidelines so that political interferences in watershed committees could be avoided to improve the efficiency of performance of watersheds.

Table 3. Decision making trend in watersheds (n=45).

Response	WDF	%	IWMP	%
Non-political leadership solves problem better	12	85.8	21	67.8
Political leadership solves problem better	2	14.2	10	32.2
Total	14	100.0	31	100.0

Source: Personnel survey, 2013.

Table 4. People participation in watershed (n=380).

Response	WDF	%	IWMP	%	Total	%
People participation plays a significant role in watershed project	105	97.2	161	59.1	266	70
People participation does not play a role in watershed projects	3	2.8	111	40.9	114	30
Total	108	100.0	272	100.0	380	100.0

Source: Personnel survey, 2013.

Table 5. Role of SHGs in watershed (n=380).

Study parameter	WDF	%	IWMP	%	Total	%
SHGs play a key role in watershed projects and involvement of SHGs is important	35	32.4	179	65.8	214	56.3
SHGs do not have significant role in watershed projects	73	67.6	93	34.2	166	43.7
Total	108	100.0	272	100.0	380	100.0

Source: Personnel survey, 2013.

*Studies on the necessity of people participation in watershed implementation:* One of the foremost criteria in the sustainability of watershed projects is the level of participation of the community as well as ownership of community assets. In the policy guidelines, it is strongly emphasized that the people's participation from project and plan preparation is very essential. PRA is an important and scientifically proven tool to evaluate the natural resources of the project area and capacity building to the beneficiaries. It was in this context, a study was made to find out the importance of community participation in watershed projects. Table 4 presents the response from the beneficiaries of watershed on their opinion on people participation. Out of 380 respondents, a vast majority of (70%) respondents expressed that people participation in PRA exercises, training, project planning and implementation has benefited the watershed as well as the community as a whole whereas only 30% of the respondents had expressed that people participation did not play any significant role in watershed efficiency. Among the watersheds, an overwhelming proportion of beneficiaries (97.2%) from WDF expressed that people participation is very much essential and have opined that participation of the community has improved the visibility of the project and understanding the need to maintain the assets for long term sustainability of watershed projects. This kind of visibility is missing from the IWMP watersheds which are evident from the data that a little over half of the respondents (59.1%) had realized the importance of people participation. It could be inferred that a prudent people participation system should be in place to enhance the efficiency in the IWMP projects.

*Studies on participation of SHGs in watershed project implementation:* Self Help Groups (SHGs) are prominent community based organizations at the grass root level. Moreover, SHGs are predominantly women centric and their involvement enhances the participation of women thereby ensuring gender equity. It is at this backdrop, the study attempted to capture the participation levels of women SHGs in watershed projects.

It could be noted from Table 5 that 56.3% of the respondents have stressed the important role played by SHGs in watershed implementation whereas about 43.7% of respondents have downplayed the role of SHGs in watershed projects. It could be inferred from the above that SHGs do play a significant role in watershed projects. However, between WDF and IWMP, only IWMP significantly involves the SHGs which are evident from the fact that 65.8% of respondents appreciated the role of SHGs whereas only 32.4% of respondents have recognized the role of SHGs. Hence, it is clear that WDF watersheds should more actively involve SHGs while implementing watershed projects

### Conclusion

It is evident from the study that the project implementation team as well as community members of both WDF and IWMP watersheds are fully aware of and appreciate the benefits of watershed in terms of soil and water conservation, agriculture improvement and other related socio-economic benefits. Inference could also be drawn that flexibility in approach to common guidelines while implementing watershed projects provide desired results rather than following common guidelines rigidly. This can be incorporated as a policy in guidelines which will enable watershed practitioner's county wide in India. Non-political leadership of the watershed community organizations has a significant impact on decision making and problem solving rather than political leadership which tend to impede the timely and effective implementation of watershed projects. This inference has to be tested at large to bring in necessary policy formulations for the future. The study also implies that the active participation of people involved and community right from project planning with a bottom up approach enhances the efficiency of watershed. In order to efficiently leverage the strengths of the community, training and PRA are important and role of SHGs in enhancing gender equity in watershed projects significantly contribute to sustainability of watershed projects.

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