PARTICIPATORY IRRIGATION MANAGEMENT FOR WATER CONSERVATION PROJECTS IN MAHARASHTRA, INDIA

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ABSTRACT

Maharashtra is a state located in western and central part of Republic of India, and is having six major River Basins where agriculture is practiced in 22.86 million ha area of which only about 12.5 million ha can be brought under irrigation from all sources. Both State Government and farmers have realized that irrigation assurance is the only way to save the crop failures and combat drought situation in Maharashtra. State Government has taken decisions to develop Water Users Association (WUAs) in minor irrigation schemes, Kolhapur type weirs, storage tanks etc. ensuring participatory irrigation management (PIM). Water potential developed under minor projects and other is of 1.79 million ha. from 90455 schemes. However, a bigger challenge of management and maintenance of these schemes is now realized. Farmers can ensure their participation through their legitimate and registered organizations. Water user's involvement has gain momentum through Participatory Irrigation Management and WUAs. Hence, there is a fertile time to work on public private partnership model in water resources schemes to reap mutual benefits.

This paper elaborates the efforts of public and private entities to develop and manage state water resources in participatory manner and highlight the issues of community mobilization and PIM in flagship programmes like SWC, watershed management water rich farms (Jalyukta Shivar), silt free Dams (Galmukta Dharan) and silt rich farms (Galyukta Shivar) of State Government which provides direct as well as indirect means of irrigation to farmers.

Keywords: PIM, WUAs, WRD, SWCD, WCD, PPP, MMISF-2005, MWRRA-2005, MI 1976, SWC

1. INTRODUCTION

Maharashtra is a promising state in Republic of India. State shares its boundary with six major states of the country and shares its cultural heritage with people of other states. Administratively, state is having 36 Districts, 355 Talukas and 43655 inhabited villages in around 24000 Village Panchayats. It is home for 11.24 million people (population as per census 2011) spreaded in 3.08 million sq. km. geographical area. It is a highly urbanized state in the country with more than 45 % people living in cities and Towns.

State is having 380 small or big rivers with total length of 20000 km in six major River Basins (Refer Annexure 1 River Basin Map) viz. Godavari, Krishna, Tapi, West Flowing Rivers, Narmada and Mahanadi. All the rivers are sharing water with some or the other adjoining state except west flowing rivers. Hence permissible water use from these rivers is to be followed mandatorily as per the provisions of tribunal to avoid interstate water conflicts.

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Major population of the state is dependent on agriculture for their livelihood and employment. Agriculture is practiced in about 22.86 million ha area. As per the various studies and reports state may have ultimate irrigation potential of 12.5 million ha from all sources water which is little less than half of the cultivated area whereas rest of the area remains fully dependent on rain. Agriculture sector is subjected various concerns which are detrimental to the growth and development of the state. Some of them are as under:

- high degree of fragmentation
- erratic nature of rainfall and climate change
- lager dependency on monsoon and higher vagaries of nature
- low productivity (water and land)

Water resources development in Maharashtra is done by Water Resources and Water Conservation Department. Recently Government of Maharashtra reorganized the Soil and Water conservation Department in the year 2017 and has extended its limits of planning, construction and management of Water Conservation Projects from 250 ha to 600 ha. Recurrent droughts in the state have underlined the importance of protective irrigation for agricultural crops in the mind of people as well as Government. Even if Government is responsible for creation of irrigation potential people have realized that their role in management of water is equally important and hence adequate legal provisions are made in the form of various acts to ensure people participation in irrigation management. Ownership of water conservation structures may remain with Government authorities but in participatory irrigation management responsibility of supervision, operation, maintenances and repairs of water conservation structure is entrusted to water users for its efficient, judicious and economical use. Government of Maharashtra has declared the policy of ensuring water users participation in management of irrigation water in Small Scale irrigation Schemes, Storage tanks, KT weirs, Lift irrigation Schemes etc.

2. PARTICIPATORY IRRIGATION MANAGEMENT:

Basic concept of PIM is very simple. Farmers or water users are provided with opportunity to actively participate in management of irrigation water for its equitable distribution among themselves through their water users associations. Strengthening of WUAs and enabling them for ease in functioning is the primary objective of PIM. Government of Maharashtra enacted Maharashtra Management of Irrigation system by Farmers Act 2005 to provide legal support to WUAs. Since then WUAs are given more powers to exercise control over irrigation water and ensure their active participation. However, looking to the success of WUAs under MMISF Act 2005, Water Conservation Department has also taken a decision to develop WUAs in MMISF Act 2005 for direct and indirect irrigation in Maharashtra. Hence water users can ensure their participation in management of irrigation water legally under this act. However size of the command is a matter of concern for WUAs. There are challenges to address the issues of development of WUAs on structures irrigating very small area sometimes less than one ha. There are no directives from the government or SWCD on development of structure specific users group and federating them in WUAs. However, huge numbers of soil and water conservation structures are still awaited to be transferred to any responsible authority for its management.

3. PRESENT STATUS OF WATER CONSERVATION SCHEMES IN THE STATE:

Water Conservation Department (WCD) was formed in the year 1992 to plan, construct and manage small scale irrigation projects of 250 ha. In the year 2000 Water Conservation Corporation was formed to expedite the regulation of these

structures along with watershed development and soil conservation. Recently, in the year 2017 a Commissionerate for soil and water conservation has been formed by redefining the project area of 600 ha. WCD is engaged in the minor irrigation works and small scale irrigation projects, Jalyukta Shivar Abhiyan, Galmukta Dharan, Galyukta Shivar, river rejuvenation, area treatment works and repair and maintenance of tanks etc. Various soil and water conservation structures are developed to ensure quick response to the demand of people for providing relief from drought impact. Following structures are undertaken by the department:

	Diversion bunds
Minor Irrigation Tanks	Cement Nalla Bandh
Storage Tanks	Land Drainage Schemes
Kolhapur Type Weirs	Tube wells
Lift irrigation Schemes	Construction of New wells
Percolation tanks	Installation of pump sets
Maji Malgujari Talav	Boring and blasting in wells
Village Tanks	River Rejuvenation
Repairs of existing old small scale irrigation Schemes	Regradation, strengthening and deepening of Nallas

Table 1 depicts the present status of direct and indirect irrigation potential created due to implementation of various structures and its utilization in Maharashtra

Table 1: IP created and its utilization in water conservation schemes in Maharashtra

Sl. No.	Schemes	No. of Schemes	IP Created in Lakh ha	IP utilized in Lakh ha
1	Direct Irrigation: Minor Irrigation Tanks, Kolhapur Type Weirs, Lift Irrigation schemes etc	18413	6.35	2.37 (37.32%)
2	Indirect Irrigation: Diversion weirs, Maji Malgujari Talav, Percolation Tank, village Tank, Cement Nalla Bandh etc.	80933	12.23	6.12 (50.05%)
	Total	**99346**	**18.56**	**8.49 (45.74%)**

Source: Sunil Kushire (2019), CE, Small scale Irrigation (Water Conservation), Pune: "Present Scenario of Water Conservation and Small Scale Irrigation Schemes in Maharashtra" article published in Water Conservation and saving in agriculture, Initiatives, Achievement and Challenges in Maharashtra Published by Government of Maharashtra, Water Resources Department.

Works carried out by Water Conservation Department (WCD) are mostly small scale schemes which resulted in quicker creation of utilizable water potential for immediate use in agriculture and domestic sector. Works like Minor Irrigation Tanks, Kolhapur Type Weirs, Lift Irrigation schemes etc creates direct irrigation potential whereas works like Diversion weirs, Maji Malgujari Talav, Percolation Tank, village Tank, Cement Nalla Bandh etc. creates indirect irrigation potential.

As per the data in table 1 WCD has completed 99346 schemes to create irrigation potential of 18.56 lakh ha and has utilized 45.74 %. Interestingly, utilization of irrigation potential in indirect irrigation is more (50.05 %) than direct irrigation (37.32 %). Within these schemes WCD has completed 30747 Cement Nalla Bandhara (CNB) under Jalyukta Shivar Abhiyan and River rejuvenation programmein state and created irrigation potential of 91496 ha and impounded about 307470 TMC water. In fact these numbers seems very impressive in eliminating water scarcity to make Maharashtra drought free but regular repair and maintenance of these small structure

is crucial for sustainable use of these structures over a period of time else there will be decline in realization of benefits in future.

As per the annual progress report of water conservation department for the year 2017, 17.95 lakh ha irrigation potential has been reported to be developed from 90455 water conservation structures. Three main actors of Government agency viz. WRD, WCD and District Councils (Zilla Parishad) are engaged in developing water conservation structures of more than 250 ha, 101 to 250 ha and 0 to 100 ha respectively till April 2017. These schemes are gaining high attention from the people in Maharashtra due to following special characteristics

- Quicker Planning, designing and implementation
- Quick relief from water stress and drought like condition
- Requires less time for completion and immediate realization of benefits
- Water is available for drinking and irrigation purpose in short period
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Table 2: Small Scale Irrigation Schemes and IP created by Government Agencies in Maharashtra.

Sl. No.	Particulars	Unit	Proposed	Completed	Percentage
1	Small Scale Schemes	No.	112444.00	90455.00	80.44
2	Irrigation Potential	Ha.	2340512.00	1795215.75	76.70
3	Expenditure	Rs.	2935491.30	906754.21	30.88

Source: Information of 0 to 250 ha minor irrigation schemes in Maharashtra, GOM Publication WCD April 2017.

Data in table 2 indicates that out of total works carried out by government agencies more than 80 % works were completed and more than 76 % irrigation potential was created till the year 2017. While in table 3 wherein department wise data is presented it was reported that Water Conservation Department has implemented 28269 schemes (100 to 250 ha) and created 476294.59 ha IP followed by District Councils (Zilla Parishads) and WRD. Interestingly District Councils completed more schemes (0 to 100 ha) than WCD and WRD.

Table 3: Completed Small Scale Irrigation Schemes by Government Agencies in Maharashtra

Sl. No.	**Particulars**	**No.**	**IP created in ha**	**Expenditure Rs**
1	Water Resources	5035	265362.67	73609.56
2	Water Conservation	28269	476294.59	429177.33
3	District Councils	57151	103558.49	403967.33
	Total	90455	1795215.75	906754.21

Source: Information of 0 to 250 ha minor irrigation schemes in Maharashtra, GOM Publication WCD April 2017

Role of community in small scale irrigation schemes is ensured well in advance i.e. from planning and implementation stage of the schemes itself. Since these schemes are close to farmer's operational farms they have opportunity to watch and ward these schemes for any damages and threats and can undertake immediate or timely repair and maintenance. Moreover, general repairs and maintenance aspects of these structures do not involve complexities due to which they are easily manageable

by local groups or village level authority like WUAs or Gram Panchayat. However, a bigger challenge of management and maintenance of these schemes is now realized by the Government and involvement of users has gain momentum through mass awareness and community mobilization. Participatory Irrigation Management is conceptualized on the basis of water user's involvement through their functional organizations which are popularly known as Water Users Association (WUAs). WUAs are to be formed to manage and maintain water conservation schemes for larger benefit of people in the state.

Efforts for ensuring community participation were started way back in the year 2000 when WCD issued a resolution to form water user's cooperative societies and hand over water conservation structures to them for repair and maintenance. As such 95 water users association are reported in literature of WCD but their functional status is yet to be confirmed. However their capacities need to be developed for total water management through training and capacity building programmes. A conducive environment for farmers is now available in the state to ensure their participation through their legitimate and registered organizations. Hence, there is a fertile time to work on public private partnership model in water resources schemes to reap mutual benefits.

Efforts are being made to promote WUAs after reconstitution of SWCD but it would be too early to give any conclusive statement as to whether WUAs would succeed in management and maintenance of small structures? But as per the government policy water users of small and minor irrigation schemes can formed their associations either in cooperative act 1960 or MMISF act 2005 and takeover management and maintenance of these schemes.

4. JALYUKTA SHIVAR ABHIYAN

Jalyukta Shivar Abhiyan (JSA) is a flagship programme of Government of Maharashtra launched in the year 2014 to overcome drought and water stress conditions. JSA has inbuilt component of ensuring people participation right from planning to implementation and after care. According to Dawale, 2019, people contribution worth Rs. 637.47 crores work till Nov. 2018, crop saving protective irrigation for Kharif crops, increased productivity of some crops from 10 to 61 percent (Pigeon Pea 61.90 %, Cotton 58.5 %, and millets 10.16 %), increase in Rabi area by about 2.08 lakh ha (19 %) over 2014-15, rise in ground water level are the major achievement of this campaign.

In an article "Let the Rain Enrich our fields", Mr. Devendra Fadnavis, Hon. Chief Minister of Maharashtra narrated the success of JSA wherein out of 22593 selected villages (2014-17, three years) and 16151 villages become water secured through construction of 557216 soil and water conservation structures resulting in water storage capacity of 2436 million cubic meter water which can provide at least one protective irrigation to 3.4 million ha of farmland.

Sustainability of JSA depends upon people involvement in creation of assets as well as after care i.e. maintenance and repairs. However, to ensure the sustainability of water conservation structures water user's organizations are must. One of the strength of JSA is people involvement in planning and implementation. But how to translate involvement into social responsibility when there is no defined procedure for developing capacities of stakeholders is a big challenge. Moreover, size and magnitude of the impact of structure is a limiting factor due to which it is difficult to draw full time agenda for sustenance of water users associations (WUAs) in this format of water conservation schemes and JSA. Even then, to realize the benefits for longer period from small and minor structures institutionalization of participatory

approach is the only available measure. In institutionalization process people are given specific role to supervise, operate, repair and maintain water conservation structures. WCD has decided to issue detail guidelines for developing WUAs in JSA and similar schemes through training and capacity building initiatives.

People/community is ignorant about the complex technical issues involved in management of water conservation structures but they are capable of handling the complex social issues like distribution of benefits, ensuring equitable distribution of water, framing commonly acceptable rules and its enforcement, deciding social norms, levying water charges and its collection, enforcing punishments against the defaulters etc. Many states have implemented acts and regulations to promote water users associations for water distribution in command area of minor, medium and major water resources projects. However, in small water conservation schemes where defined command area varies from 0 to 600 hectares, following reforms will be needed for implementation of Participatory Water Conservation Management:

- Accelerating formation of WUAs and handing over management to them
- Monitoring of functions of WUAs like water budgeting, measurement of water, meetings, record keeping, levying and collection of water charges, maintenance and repairs of water conservation structures.
- Resolving technical complexities in maintenance of structures
- Providing advisement on economic issues of WUAs
- Performing maintenance and repairs of structures from WUAs funds
- Rewarding successful WUAs
- Implementing pilot projects

4.1 Government Policy:

Following important provisions are made in water policy 2003 –

- Role of water users will be increased through legally registered WUAs
- Water Users participation will be made mandatory in management of water resources
- Water will be supplied on volumetric basis to WUAs

4.2 Challenges Before SWCD

- Enforcement of concept of participatory water conservation and Management
- Improvement in irrigation efficiency
- Strategies for competing water demand of different sectors
- Climate Change and droughts
- Formation of WUAs and transfer of water conservation schemes to them for management
- Equitable water distribution by WUAs

5. SILT FREE DAMS (GALMUKTA DHARAN) AND SILT RICH FARMS (GALYUKTA SHIVAR)CAMPAIGN (ABHIYAN)

Implementation of silt free dams and silt rich farms campaign is the responsibility of Revenue Department in Maharashtra. WCD provide all technical assistance, advisement and services to Revenue Department to implement the campaign. Detail guidelines are issued by SWCD for successful implementation of campaign.

According to Kushire (2019),100.63 lakh cubic meter silt was removed from approximately 2535 schemes and which was used by farmers on their farms under this campaign. Community responded profoundly to the campaign and at some places were eager to reap silt from the water conservation structures with their own contributions. Silt free structures revived their storage potential and nutrient rich silt improved the soil fertility resulting in higher agriculture production and reducing cost of input like chemical fertilizers and thereby increasing the net income of farmers.

6. PAANI FOUNDATION EFFORTS TO MAKE VILLAGES DROUGHT FREE:

Paani Foundations, an organization emerged out of a famous television show Satymev Jayate, triggered the village communities to participate in water cup competition led by Bollywood star Mr. Amir Khan and his team. This competition is organized from the year 2016 onward and has generated community energy to combat the drought in Maharashtra. In water cup competitions village communities are triggered to work for 45 days and develop their soil and water conservation structures through selfless labour i.e. Shramdaan. The element of success in this event is systematic triggering of village communities followed by training and capacity building activities through well-trained professional staff and back up of good training material available on paani foundation web site as open source material. Village environment building before the start of main event is so appealing that entire village community get united irrespective of their internal differences and join hands to work of water. In the year 2016, initially, 116 villages of three blocks were covered by Paani foundation which increased to 1321 in 2017 and 4025 in the year 2018 covering almost 24 districts and 75 blocks. Kale Eshwar (2019) critically analysed claim of the drought eradication adopted in this initiative. He not only narrated the important contribution and element of success of Paani foundation on one hand but also listed the fallouts and hollow claims of drought proofing through this campaign. According to him soil and water conservation works and availability of water is not enough for drought proofing one has to look for its equitable distribution and develop mechanism where everyone will be having equal right over the common property resources like water.

7. WATER USERS ASSOCIATION ON SMALL SCALE OR MINOR IRRIGATION SCHEMES:

Water Users can form their organization on all kind of small scale minor irrigation schemes under following acts –

- Maharashtra Management of Irrigation System by Farmers Act 2005 and
- Maharashtra Cooperative Act 1960

7.1 Benefits Of Formation Of Wuas

- Management and Maintenance of entire minor irrigation scheme will be handed over to WUAs
- Water users rights will be established over water impounded in the project
- WUAs will decide the water use, water distribution, water tariffs and its collection
- Freedom of growing crops
- WUAs will be having freedom to undertake various measures for benefit of their members

7.2 Standard Procedure Of Formation Of Wuas Include –

- Collection of general information about the project on which WUAs are proposed to be formed
- Delineation of area of operation of WUAs
- List of water users who are land holders and willing to use water for irrigation purpose
- Membership of WUAs
- Water supply to WUAs
- Community mobilization and capacity building
- Opening of Account in Nationalized Banks
- Formation of WUAs, nomination/ election of body
- Registration
- Agreement between WUAs and WCD
- Joint Inspection and testing of structure
- Transfer of water management
- Training, capacity building and hand holding support to WUAs

7.3 Present Status Of Wuas In WCD

Kushire (2019) stated that there is no separate wing for irrigation management in WCD, the WCD is expected to form WUAs in small scale irrigation schemes which create irrigation potential upto 250 ha. Out of 493 schemes WUAs have been formed on 472 schemes. In case of schemes having irrigation potential from 0 to 100 ha, out of 27776 schemes WUAs have been formed in 1416 schemes. Thus WCD has promoted the formation of 450 WUAs. For the remaining 1439 schemes WUAs formation is in progress. While discussing the WUAs formation in small and minor irrigation schemes and also in JSA during various training programmes of field level functionaries of SWCD, author have come across the following intricacies which are yet to attempt in Maharashtra:

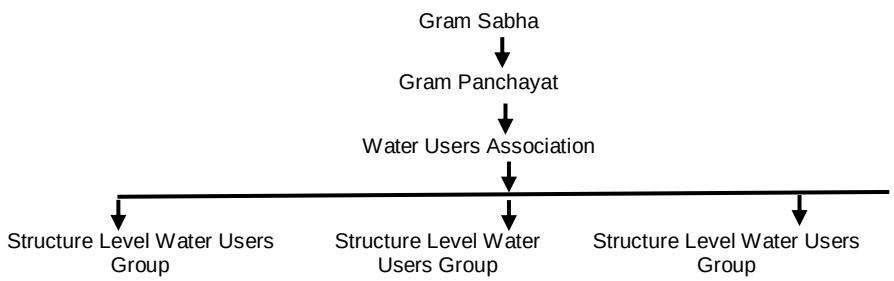
1. In JSA, structures like KT weirs, CNBs are irrigating very small area like 01 to 02 ha and have one or two beneficiaries at many places. Number of such small structures vary from 01 to more than 5 in villages. Formation of WUAs on such miniscule is near to impossible and if at all it is done then volume (No.) of WUAs will increase to unmanageable scale.
2. Participation of people during selection of villages and work phase could be seen all over the state but it does not sustain once the construction work of structures are completed. This hamper the efficiency of structures due to want of general maintenance and are becoming non-functional.
3. There is no management cadre in SWCD to work on developing WUAs for water management
4. Training and capacity building of end user is unattended because of inadequate manpower within government department.
5. Local bodies like Gram Panchayats are empowered to take over the soil and water conservation structures once it is developed in the village. But they also do not have adequate training for maintenance and repairs of these structures.
6. Handing over of completed schemes and small soil and water conservation works is a complex process due to lack of proper institutional arrangement at village level. These structures need regular repair and maintenance. Gram Panchayat is engaged in many works and hardly having will and manpower to do this task.

7. Availability of funds is always been a crises in completed projects for repair and maintenance. Hence most project could not deliver their benefits due to want of petty works and irrigation potential remain unutilized.

8. EFFORTS FOR ENSURING FORMATION OF WUAS IN WATER CONSERVATION SCHEMES:

Realizing the importance of people participation Government of Maharashtra issued detailed resolution in the year 2000 for formation of Water Users Association in Cooperative act 1960 and handing over management of small schemes to them. Later modifications were issued to these Guidelines and in the year 2018 and provision was made to register WUAs under Management of Irrigation System by Farmers Act 2005. Responsibility of drafting guidelines for formation of WUAs was given to Commissioner, Soil and Water Conservation which has been complied and provided to GOM for review. A committee under the chairmanship of Director General WALMI Aurangabad studied the possibility of transfer of indirect irrigation structures to WUAs and submitted its report to GOM with recommendations to form WUAs in MMISF Act 2005. Formation of water users association at village level can be done by organizing the structure level water users for direct and indirect irrigation schemes. All the structures having more than one user shall nominate their representative for WUAs.

In case of structures having only one user he will automatically become eligible for representing his structure in WUA. Formation of WUAs is the collective responsibility of representatives of structure level users groups. Once the decision is made to form WUA it will be placed before the Gram Sabha and Gram Panchayat. On acceptance of proposal of structure level water users a formal approval will be given by Gram Sabha for formation of WUAs either in Cooperative act 1960 or MMISF act 2005. On completion of formalities of formation WUA will take over the village level soil and water conservation structures and govern their routine repairs and maintenance along with defined functions of irrigation management.



Important aspect to ensure the sustainability of soil and water conservation works is the community mobilization and formation of village level committees and structure level users group of men and women, imparting them appropriates skills, developing their capacities to handle water issues efficiently, making them aware of value of water and strengthening them to reduce the vulnerability.This can be done by-

- Mobilization of Structure level groups
- Formation of village level village Water Users Association.
- Ensuring Gram Panchayat members involvement through gram Sabha

8.1 Village Assembly Or Gram Sabha:

In present context it is necessary to create awareness among the Gram Sabha members and involve them in participatory management of these small water resources. Gram Sabha may be sensitized to take resolutions for formation of various groups and ascertain responsibilities to them by passing the resolutions and setting the social rules on use of water.

8.2 Village Council Or Gram Panchayat:

Gram Panchayat execute all the decisions taken in Gram Sabha and maintain records of works done. Sarpanch who is the elected representative of Gram Panchayat is the leader responsible to present details of village development activities along with utilization of funds etc. to Gram Sabha. Involvement of Gram Panchayat members and concerned Government departments engaged in the development of small and minor water conservation work is to be ensured right from planning to its implementation, monitoring and evaluation. On completion of such schemes Gram Panchayat will move a resolution to Gram Sabha to take over the management and maintenance of completed structures through structure level users group. Any conflicts arising out of these structures shall be resolved as per the provisions under the act where Water Users Association is registered.

8.3 Structure Level Water User Groups:

Structure level water user group is the committee of end users. Organizing these end users is an important community mobilization activity. These groups can be given responsibility of maintenance, supervision and repairs of structures to ensure its sustainability. Identification of structure level users is the key activity in the process of organizing these groups. Once the key persons are identified as users of that structure they may be required to take lead in carrying out micro-level planning for their respective scheme/structures, assist implementation authorities in execution of the scheme, monitor quality of structure, keep record of activities, take care of the structure once it is completed and handed over to village level WUAs, carry out minor repair and maintenance etc. Formation of water user groups, their training and capacity building, exposure visits etc. are the other activities need to be carried out to create awareness among these groups.

8.4 Water Users Association:

WUAs are social institution for village water resources development and management activities with external support from concerned government organization. WUAs will be formed by representatives of structure level users group explained as above. All the other groups in village who are associated with water related activities will be the members of WUAs. WUAs will function as per the provisions of act under which it is registered. They will carry out meetings on monthly basis, take review of progress, discuss issues and take decisions.

9. CONCLUSIONS

Water Conservation Department formed in the year 1992 is instrumental in providing usable, efficient and immediate relief providing small scale water conservation schemes in the state. These structures are not only providing water for agriculture and domestic use but they are also transforming the basic livelihood of the rural people through their schemes like Water Rich Farms, Silt Free Dams and Silt rich farms. Construction of small scale irrigation works and CNB in chain has not only reduced the possibilities of flash floods, degradation of land and erosion of soils but

also increased the water storage potential in the villages for irrigation purpose. Availability of water has heightened the hope of farmers to convert single crop area in double crop and increase the cropping intensity resulting in increase of per capita income and additional opportunity to generate employment. Construction of small water storage structures and rejuvenation of water bodies has increased the ground water level resulting in increased flow in the rivers. However, it is felt that ensuring sustainability of these efforts is rather challenging task before the government especially when department is having paucity of manpower, non-availability of separate management wing and cadre to work on community based agenda of transfer of schemes to WUAs, meagre availability of funds for repair and maintenance of old structures etc.

People participation during planning and implementation phase of the small schemes is overwhelming but maintaining this disposition for operation, maintenance and repairs is a difficult task. Participation in physical terms is not mere counting heads but it is the complete involvement of people in decision making process. In order to regulate this mechanism of decision making for common property resources like small schemes people participation must come from their active organizations. Some of the models suggested and implemented in few other schemes of Government has encouraged the formation of WUAs and transfer these small structures to them. Another important institution available in the rural area is Village Panchayat to whom the responsibility of management of water conservation schemes can be transferred with adequate training and capacity building. Unfortunately, the software part i.e. building the capacities of farmers and water users remained neglected part during the implementation of the schemes. Concept of developing Structure Level Users Groups (SLUG) for direct and indirect irrigation structures is the functional proposition which has the potential to ensure active participation of water users in maintenance and repair. Formation of WUAs by the representatives of SLUGs will ensure the coordination and regulation of these groups for sustainable management of small and minor schemes. Further WUAs can be registered under cooperative act 1960 or MMISF Act 2005. Participation of water users in development of soil and water conservation schemes has been increasingly realized by the people of Maharashtra due to consecutive droughts in recent years and also due to mobilization of community by non-governmental organizations. In any normal rainfall year state is almost ready to sustain in scarcity hit area and regain normalcy of providing water for various purposes. However, lessons learnt during the period of water scarcity will lead to underline the importance participatory management of water resources through active water users association.

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