Global Theme on Agroecosystems

A Comparative Analysis of Institutional Arrangements in Watershed Development Projects in India

INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

Ministry of Agriculture and Ministry of Rural Development

Abstract

Institutions are mechanisms provided by individuals in the community to resolve social dilemmas and these define and restrict access to and control over resources. In the context of watershed development they are organizational structures evolved in the process and their mutual interaction mechanism.

Watershed development approach has evolved over the decades bringing a paradigm shift in thinking of decision makers, which resulted in shifting responsibilities of natural resource management towards local communities and following participatory approaches in implementation. As a result the new generation of watershed development projects encounter multi stakeholder situation requiring institutional arrangements to achieve efficiency and sustainability.

The present study has looked into four leading watershed development projects viz: Andhra Pradesh Rural Livelihoods Programme (APRLP), Sujala Watershed Program in Karnataka, Indo-German Watershed Program (IGWP) in Maharashtra and Drought Prone Area Programme (DPAP) following Hariyali Guidelines, Rajasthan in India, which is known to have designed innovative operational modalities to enhance communities' participation in management and implementation of the projects. There are no efforts in critically comparing different projects but assembling elements of institutional mechanisms and their mutual interactions so as to abstract the potentially significant institutional interaction and arrangements that could enhance the efficiency of any programe. Also development of capacities of these institutions and stakeholders and their linkages are studied closely to complement and fortify the objective of this study. This study showed that through capacity building and development of social capital along with suitable institutional mechanisms at local watershed as well as supporting institutions in terms of gender, equity and sustainability, improved livelihoods could be achieved. Critical institutional mechanisms and actors' linkages in these programs are used to infer "good institutional mechanisms" for improving impact of watershed programs in India.

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Background

Institutions can be defined as organizations, set of conventions, policies or guidelines which regularise social behaviour. According to Ostrom (1999) the term institution refers to the shared concepts used by humans in repetitive situations organized by rules, norms and strategies. In the context of Natural Resource Management (NRM), the word could be further understood as the formal and informal rules of the game which govern interactions between individuals and their use of resources. Institutional arrangements are the ways through which mechanisms for individuals are provided to resolve their social dilemmas (Steins 1999). These arrangements define and restrict access to and control over resources, giving appropriate incentives to users and theoretically guaranteeing the sustainability of natural resources (Ostrom et al. 1999). For the current study, institutional arrangements in a watershed development project mainly refer to the organizational structures evolved in the project and their mutual interaction mechanism.

In the beginning, natural resource management (NRM) in rain-fed areas had become synonymous to soil and water conservation by putting up bunds to harvest runoff (Singh 1998, Wani et al. 2002). In these activities techno-centric and target oriented approaches were followed by involving one or two departments of the government without much coordination among each other. It was a top-down approach with hardly any involvement of the primary stakeholders in planning, implementation, and maintenance. Hence, such efforts did not make headway in impacting livelihoods of the rural poor and sustainable management of watersheds in rain-fed areas (Farrington and Lobo 1997; Joshi et al. 2000; Dixit et al. 2001; and Wani 2002). In the later stages, NRM in rain-fed areas has been attempted by means of various watershed development programs implemented through different agencies such as government departments, NGOs and research institutes with varying degrees of success. In the new approach, the watershed, a land unit to manage water resources, has been adopted as a planning unit to manage total natural resources of the area (Wani et al. 2003 and 2006). This approach has made it necessary to adopt multi-disciplinary approach in watershed management.

Watershed development approach has evolved over last two decades, bringing a paradigm shift in the thinking of decision makers, which resulted in shifting responsibilities of NRM more towards local communities and following participatory approaches in implementation of projects (Wani et al. 2006). Of late, policy makers are showing their preference for village level institutions to manage watershed development projects. But village level institutions, in most cases, do not have relevant capacities to deal with complexities involved in natural resources management. They need to be provided necessary handholding support initially to be able to independently handle those responsibilities by the end of the project period. To realize this, a need-based capacity building mechanism should be in place. Simultaneously, there needs to be a suitable monitoring and feedback system to achieve optimum functioning of various actors involved in the project.

As a result of such developments, the new generation of watershed development projects are encountered with multi-stakeholder situations, requiring innovative institutional arrangements to achieve efficiency and sustainability (Wani et al. 2003 and 2008).

In a watershed, similar to the ecology of natural biophysical systems, there is a social ecology of various organizations. The latter has a significant effect on the former by continuously manipulating it. Thus studying the social ecology of organizations through institutional analysis is very important to take appropriate measures. In the recent literature on NRM, a lot of focus is given for the work on institutional arrangements in NRM (Ostrom 1990; Veeman and Politylo, 2003; and Cortner et al. 1998), especially in cases where responsibility for natural resources is looked at from integrated

ecosystem or landscape perspectives (Soderqvist et al. 2000), which is the case in watershed development projects.

However, there are very few studies in India about institutional arrangements in watershed development projects and there are no efforts in critically comparing different projects with regards to institutional arrangements and interactions amongst various actors involved in implementing projects. In the current study, an attempt is made to study the new generation of watershed programs in India that follow different innovative institutional arrangements to achieve the common objectives of increasing productivity and rural incomes through enhanced efficiency, sustainable management and use of natural resources. The learnings could be shared for appropriate adaptation and adoption.

Proposed study is guided by the following assumptions:

- institutional arrangements would result in evolution of institutional structures, specific responsibilities assigned for each of them and interactions among them. By studying these institutional structures, roles played by them and their interaction mechanism, institutional arrangements could be understood to a large extent;

- if institutional arrangements ensure that each of the actors are aware and appreciate their responsibilities, and there is an appropriate enabling environment for performing their roles, impact of project initiatives would be higher and sustainable.

Conceptual Framework

Objectives

The study was taken up with the overall aim for improving the efficiency of natural resources management in dryland areas. The purpose of this study is to identify and highlight specific components of institutional arrangements in different watershed development programs in India, which have the potential to contribute towards efficiency and sustainability of the project initiatives.

Specific objectives of the study are:

- to examine and compare selected watershed development projects with regards to:
  o different institutional structures evolved for the program, their roles and their mutual interaction mechanism;
  o enabling environment and support structures established for primary stakeholder institutional structures and their relevance.
- to develop a procedure/protocol for analysing institutional arrangements in watershed development projects

Methodology

1. Four watershed development programs which have adopted innovative institutional arrangements were selected based on literature review. Watershed programs which were selected for the study are:
   - Andhra Pradesh Rural Livelihoods Program (APRLP) in Andhra Pradesh
   - Sujala Watershed Program in Karnataka (Sujala)

- Indo-German Watershed Development Program in Maharashtra (IGWDP)
- Drought Prone Areas Program (DPAP) Watershed Program following Hariyali guidelines in Rajasthan (Hariyali)

2. Rationale for selection of watershed programs for the study:

- Geographical distribution: Watershed programs were selected from different parts of India to avoid concentration of observations from a limited area and to capture different socio-cultural scenarios impacting respective institutional arrangements.

- Innovative institutional arrangements:
  - APRLP watersheds: Women SHGs networked at watershed level into a village organization (VO) hold the responsibilities of implementation of the program. The watershed plus approach is followed by giving focus to livelihoods of watershed communities.
  - Sujala watershed program: The area groups (AG) formed by drawing members from mini-micro watersheds and groomed them into coherent units based on SHG principles a novelty of this program. Government and non-governmental organizations (NGOs) linkage are created at the state, district and field levels. Responsibilities of watershed program implementation are shared between them.
  - Indo-German watershed development program (IGWDP): Village watershed committee (VWC) formed with representation of the whole village, including the landless poor is made responsible for the program implementation. There is a clear separation of a 'hands-on' capacity building phase with the main implementation phase.
  - DPAP watersheds following Hariyali guidelines: In this program, major chunk of responsibilities of watershed project management at watershed level are held by the *gram panchayat* (a *panchayati raj* institution at the village level) to ensure continuation of watershed management in the post-project phase. It is also proclaimed to have simplified institutional arrangements. Exit protocol is proposed to be part of action plan.

3. During the study, institutional arrangements formalised through guidelines were understood from project documents and discussions with key informants. Informal arrangements and manifestations of formal arrangements were captured by studying two watersheds in each of the program.

4. In each of the programs, two watersheds which are categorised as successful with regards to institutional arrangements by respective program managements were chosen as sample watersheds for focussed study at the micro watershed level.

5. Tools and methods: Data collection was done by adapting different stakeholder analysis tools/ matrices (e.g. stakeholder role matrix, stakeholder importance/influence matrix, stakeholder linkage matrix, etc.) and participatory tools (e.g. venn diagrams, focus groups discussions (FGDs), semi-structure interviews, etc.).
  - Stakeholder importance/influence matrix and stakeholder role matrix exercises were conducted with primary stakeholder institution's representatives (watershed implementing agency) and secondary stakeholder institution's representative (WDT/PIA) groups separately.
  - Stakeholder linkage matrix and stakeholder role performance matrix exercises were done with different stakeholder institutional groups separately.

- Capacity building needs assessment was done separately with different stakeholder institutions to augment the assessment of role performance by different stakeholder groups.
- Semi-structured interviews were conducted by using customised questionnaires with different stakeholder institutions separately

6. Throughout the study, emphasis was on triangulation by collecting information from various stakeholder groups separately.

7. Data collection was done from groups of representatives from each stakeholder category. It was ensured that each group of respondents consisted of more than 30 per cent of the total members of stakeholder category. Unanimous responses from each respondent group were collected. When there was difference of opinion, it was documented. In total, 661 stakeholder representatives were contacted/interviewed from four watershed projects, 8 watershed villages located in seven districts and four states, consisting of 219 farmers/UG members/AG members; 180 women/SHG members; 28 WDT members; 115 laborers/LG members; 53 representatives from VO/EC/VWC/GP; 17 officers from line departments and 49 project staff. (see Table 1)

8. Data collected has been appropriately pooled, processed and presented in different tables and figures for discussion.

Table 1. Number and category of respondents contacted for information collection.

Category of stakeholders	APRLP Watersheds		Sujala watersheds		Indo-German watersheds		DPAP Watersheds following Hariyali	
	Karive-mula	Appay-apalli	Ancha-tageri	Nasvi	Morala	Jatdeola	Shishod	Palthor
Farmers/UG/AG	15	18	22	26	18	20	60	40
SHG/Women	14	22	30	23	12	16	37	26
WDT	4	4	4	4	3	3	3	3
Labor/LG	20	12	15	12	8	14	22	12
VO/EC/VWC/GP	8	9	6	6	6	7	5	6
Line departments	3	-	8	-	2	-	4	-
Project staff	8	-	17	-	14	-	10	-
Total	61	65	77	71	47	60	127	87
Grand total	137	-	173	-	123	-	228	-

Scope of the study

1. Through separate guidelines of each of the programs, implementation strategy is promulgated in their respective watersheds. These are formal procedures mandated/suggested through the program, but in many cases field level implementers innovate and adapt these formal guidelines to improve efficiency and sustainability or for operational simplicity. The study recognises institutional arrangements propagated through guidelines and then focuses on the existing institutional arrangements in the field.

2. For the study, main focus has been on watershed level institutional arrangements. Institutional arrangements at higher levels have also been considered to the extent that they support setting up of watershed level organization. Discussion in the following sections divulge in these lines.

3. Project performance is affected by (1) the system planned for the program and (2) governance of the system. Current study focuses on system part of the institutional arrangements than governance issues. This is the reason for selecting two successful watersheds with regards to institutional arrangements in each of the program.

4. In spite of making best effort to capture the exact status of institutional arrangements in different programs, it is understood that the observations are specific to the watersheds studied. It is always possible that situation would be different in other watersheds of respective programs based on local facilitation and informal arrangements.

Study Findings and Discussion

This chapter deals with observations during the study. In different sections of the chapter, institutional structures of primary stakeholders, institutional structures that are supporting primary stakeholders, interactions among different institutional structures and post project institutional arrangements are discussed. Each of the components of institutional arrangements is discussed by comparatively analysing their status in the four programs.

It was observed during the study that, there are largely three categories of stakeholder institutions in each of the projects namely resource users, resource managers and project implementing/supporting agencies. These three categories are not mutually exclusive. In the current study for the convenience of comparison and discussion, these agencies are categorized as institutional structures of primary stakeholders and secondary stakeholder institutional structures. Primary stakeholder institutions are those that are formed with watershed community who directly interact with resources in the watershed and/or are impacted by changes in the resource use/management; while secondary stakeholder institutions are those which support primary stakeholder institutions in use/management of their resources. For the purpose of comparison across programs certain common names for stakeholder groups, which are handling similar responsibilities, have been used. They are explained wherever they are used.

Institutional Structures of Primary Stakeholders

It is a widely appreciated fact that efficiency and sustainability of watershed development programs is determined by the quality of institutional structures created during the project period, and interactions among them and with other relevant agencies active in the vicinity. In order to meet these requirements, various models of institutional arrangements are tried by different watershed programs. Main aim of these models is to achieve optimal involvement of all relevant sections of primary stakeholders and local institutions at various stages of program implementation and management. During the stakeholder analysis in four watershed programs, it was found that there are many relevant agencies/functional institutions that contribute for enhanced performance of the program (Fig. 1). The four watershed programs have involved these stakeholders through different institutional arrangements.
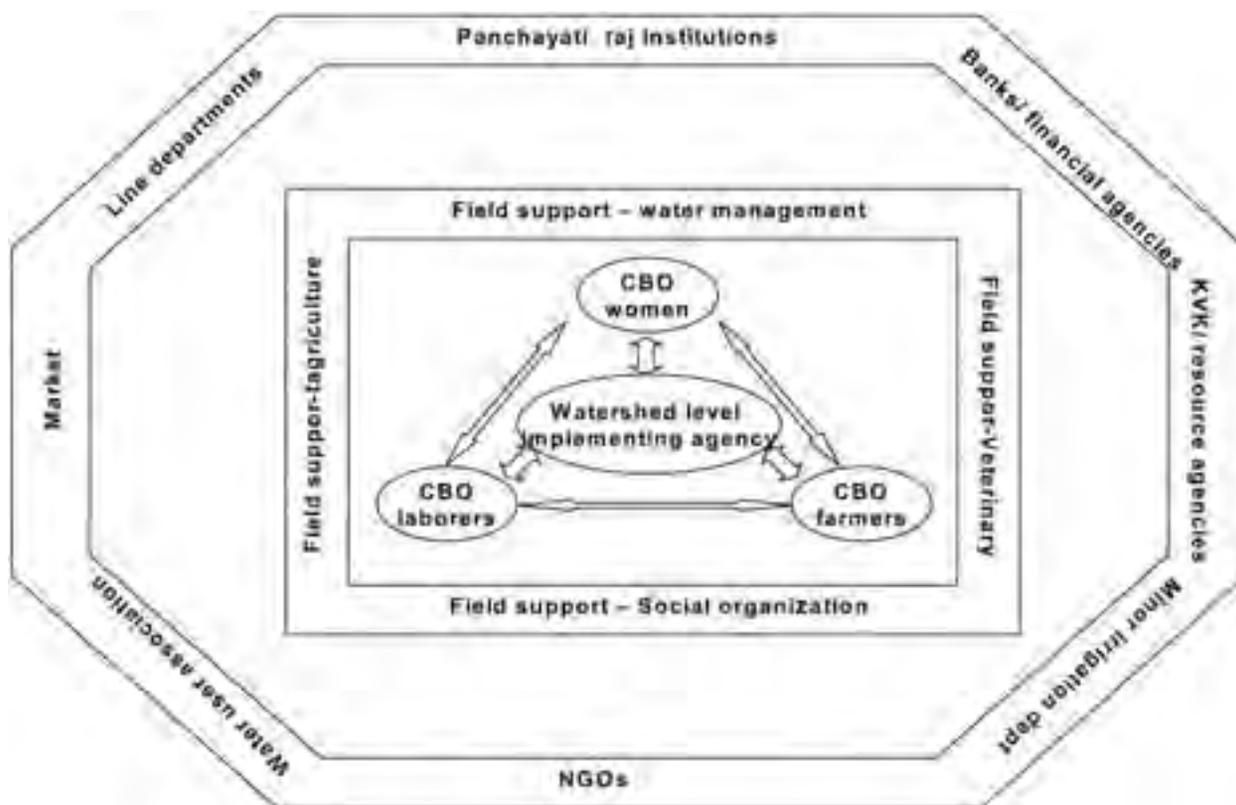
Figure 1. Institutional context of watershed development projects at the village level in India.

Watershed Level Implementing Agency (WIA)

The WIA is the institutional structure which is responsible for anchoring implementation and management of the program at the watershed level. In order to realise the philosophy of sharing responsibilities of watershed project management with the local communities, this institutional structure has been evolved with different combinations of primary stakeholders in different projects. The rationale is to achieve equity, and at the same time efficiency and sustainability of the program. This section discusses WIAs in the four watershed programs.

Sujala Watershed Sangha (SWS) and executive committee (EC) of Sujala Watershed Program: The SWS is a registered body under the Societies Act, which constitutes the general body of the micro-watershed community with two adult members (one male and one female) of each of the household in the watershed. The 14-member EC is elected/selected through open voting by SWS members. Equity is ensured in the EC by drawing 6 members from six area groups (AGs), five from self-help groups (SHGs), two from the local *gram panchayat* and one representative from DWDO's office. If there are more than six AGs and five SHG in the watershed, their representatives are the invitees in the committee. This ensures that all the CBOs of women and land owners present in the watershed are made part of management of the program.
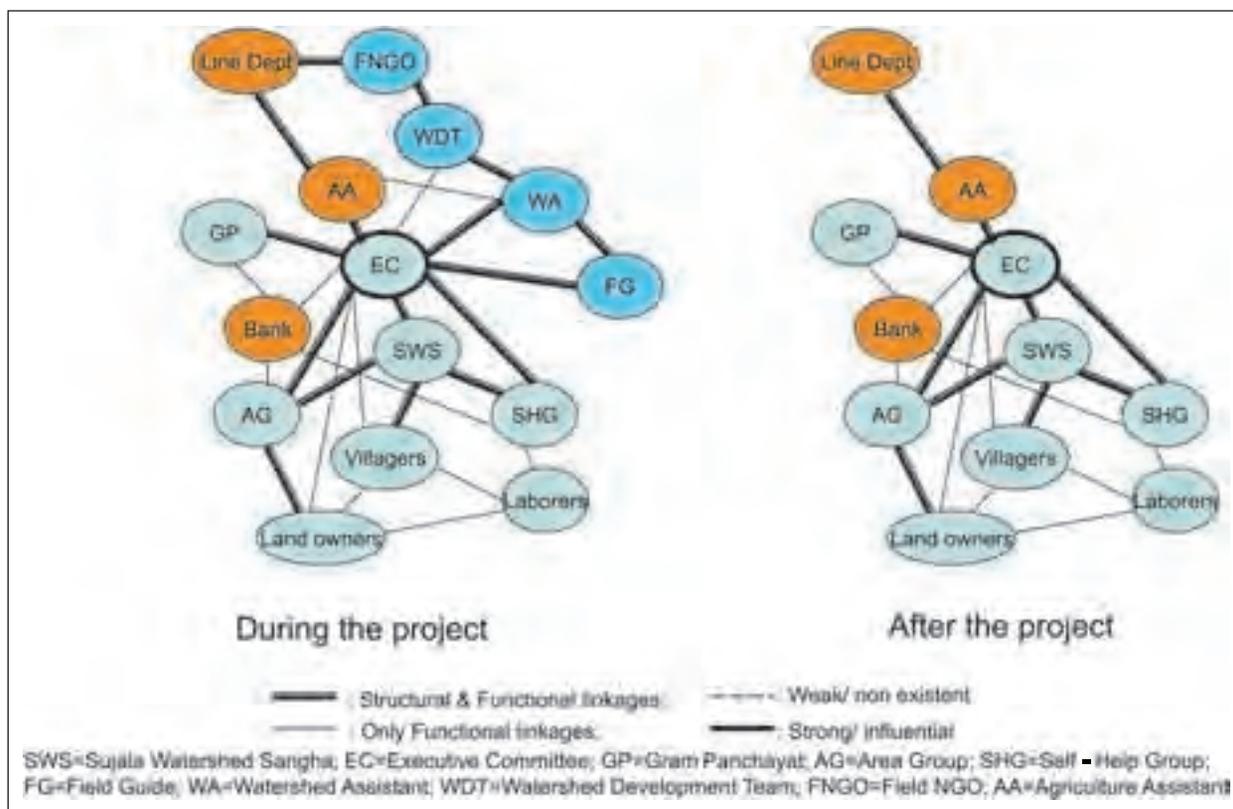
Figure 2. Watershed level institutional arrangements in the Sujala watershed program in Karnataka, India.

Representatives of field NGO[1] (FNGO) and lead NGO (LNGO)[2] are the other invitees in the EC. Gender balance is ensured by making it mandatory to have 50% women members in the committee. Social equity is attempted by guaranteeing to select one from each of the small farmer, marginal farmer, SC/ST, progressive farmer, landless and rural artisan sections of the community as members of the EC. President and vice president are elected annually by the EC members while secretary and treasurer are elected once in two years. The treasurer and the president/secretary can operate accounts as joint signatories. It is mandatory to have one of the three as a woman.

Village Organization (VO) of APRLP Watershed Program: In this program, the VO, which is an all-women body, is made responsible to play the role of WIA. All the SHG present in the village are represented in the VO. Executive body of the VO is formed with two leaders from each of the SHG. Initially SHG is formed. When they are a few months old, trainings are provided for the SHG members about the concept of getting networked into an apex body and related issues.

The VO is evolved in a participatory manner. As per the guidelines, rules and regulations of the VO need to be evolved through practice. But in the field it is observed that certain pre-decided norms are facilitated through watershed development team (WDT). The revolving fund (RF) is maintained with the VO, which would provide for the most eligible SHGs categorised based on the need, composition of poor sections in the SHG and financial performance. Each group will repay this amount to the VO with interest after rotating among its members.

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[1] FNGO is the field level NGO which is the PIA of the watershed
[2] LNGO is the district level NGO which works closely with District Watershed Development Officer (DWDO) in implementation of the watershed in that particular district.
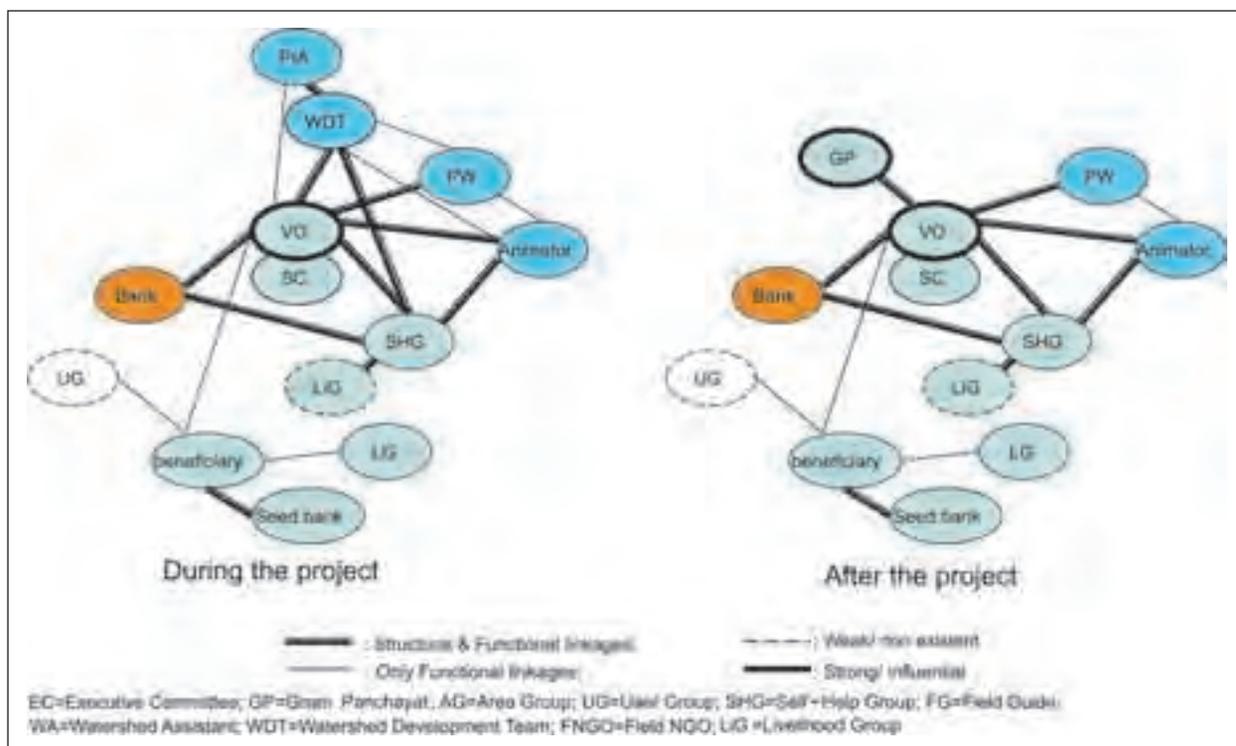
Figure 3. Watershed level institutional arrangements in the APRLP watershed program, Andhra Pradesh, India.

Box 1. Rotation of leaders in VO: During the field study it was found that the process of rotation of VO leaders was in progress. Discussions suggested that there was uneasiness among everybody in the VO. They feel current leaders are the most eligible due to their skills and interest in leadership, and also their capacities have been developed accordingly in the past few years. Replacements with such qualities are not available within the group. It was evident during associated discussions that some external force was thrusting the idea on the members, against their will. This shows that the trainings provided for the VO members to deal with responsibilities become effective only when they use those skills to perform specific roles, as in the case of VO leaders.

Necessary trainings are organised for VO members to deal with their responsibilities. The VO members are formed into different sub committees to take up specific responsibilities of the program implementation and management. These committees are similar to task force which gets dissolved once their specific role is accomplished. Para workers and animators are the field staff who support VO on technical and social organizational issues, respectively.

The Village Watershed Committee (VWC) of IGWDP: The VWC is formed by unanimously selecting/electing members from gram sabha, which represents whole village, during a general body meeting. While selecting, main emphasis is on ensuring corresponding representation from different socio-economic sections of the community. In the committee, 50 per cent of the members are ensured to be women. All the SHGs in the village are networked into *Samyukta Mahila Sangha* (SMS). The VWC works closely with the SMS in management of the program. One *panlot sevak* and supervisors assist VWC in day to day implementation of the program.
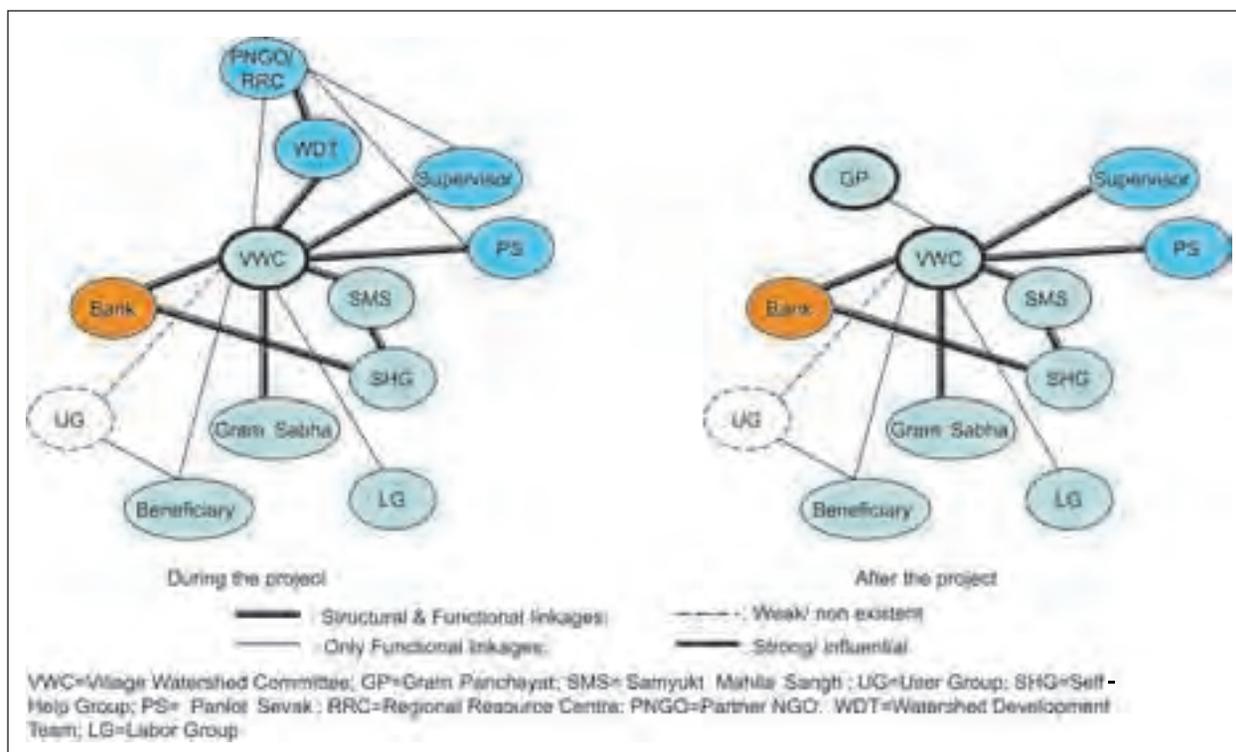
Figure 4. Institutional arrangements in Indo-German Watershed Program in Maharashtra, India.

Gram panchayat (GP) in the DPAP Watersheds with Hariyali Guidelines: In the new guidelines of DPAP, which came into effect from April 2003, local GP is made the WIA, without creating a new institutional structure. As mentioned in the guidelines, to ensure simplicity very few new organizational structures are created in this approach. The watershed program is implemented as another activity of the GP. Watershed fund is received in a separate bank account opened in the name of GP. The *sarpanch* and the secretary are the cosignatories for operating finance and administrative related matters for the program. A multi-disciplinary team of WDT provides necessary support for the GP in carrying out the program activities. Assistant engineer (AEn) supported by junior engineers (JEn) from corresponding *zilla parishat* (ZP) monitors WDT and support GP in program implementation.

It is evident that Hariyali Guidelines simplified the institutional structures involved in the program. However, discussions with different stakeholders revealed that many potential organizations that could have contributed in the development process were excluded.

Involvement of different sections of the community through WIA models:

One of the components of the study was to understand the involvement of different sections of the community in the project implementation and management. From the results, when the four programs were examined for their success in sharing the program responsibilities with different stakeholders, some interesting observations transpired, which are presented in the following table (Table 2).

Table 2. Responses of different stakeholder groups on the issue of their involvement in the program implementation.

	Women members of WIA/SHG				LG members/laborers				AG or UG members/farmers				GP members			
	Sujala	APRLP	IGWDP	Hariyali	Sujala	APRLP	IGWDP	Hariyali	Sujala	APRLP	IGWDP	Hariyali	Sujala	APRLP	IGWDP	Hariyali
1. What is their involvement at different stages of the program management?																
Planning	M/L	H	H	No	No	No	No	No	H	M	M	M	L/No	No/L	No	High
Implementation	L	H	H	No	No	No	No	No	H	M/L	M/L	M/L	Low	No	No	High
Monitoring	L	H	H	No	No	No	No	No	H	L	L	L	M/L	L	No	High
2. Have they suggested any modifications while preparing annual action plan? What happened?																
Yes/No and Accepted (A)/ Rejected (R)	Y & A	Y & A	Y & A	No	No	No	No	No	Y & A	Y & A	Y & A	Y & A	No	No	No	Yes & A
3. Have they at any time tried to incorporate women specific issues or non-farm issues in the action plan?																
Yes/No	Y	Y	Y	No	No	No	No	No	No	No	No	No	No	No	No	No

Note: Information for the table has been collected through semi-structured interviews with different stakeholder groups. Information from two sample watersheds of each of the program is compiled into the following table. When there is similar opinion from both the watersheds it is mentioned as one. When there is difference of opinion, it is also captured by mentioning both. This information is triangulated in semi-structured interviews with other stakeholders.
M = medium, L = low, H = high, Y = yes, A = accepted
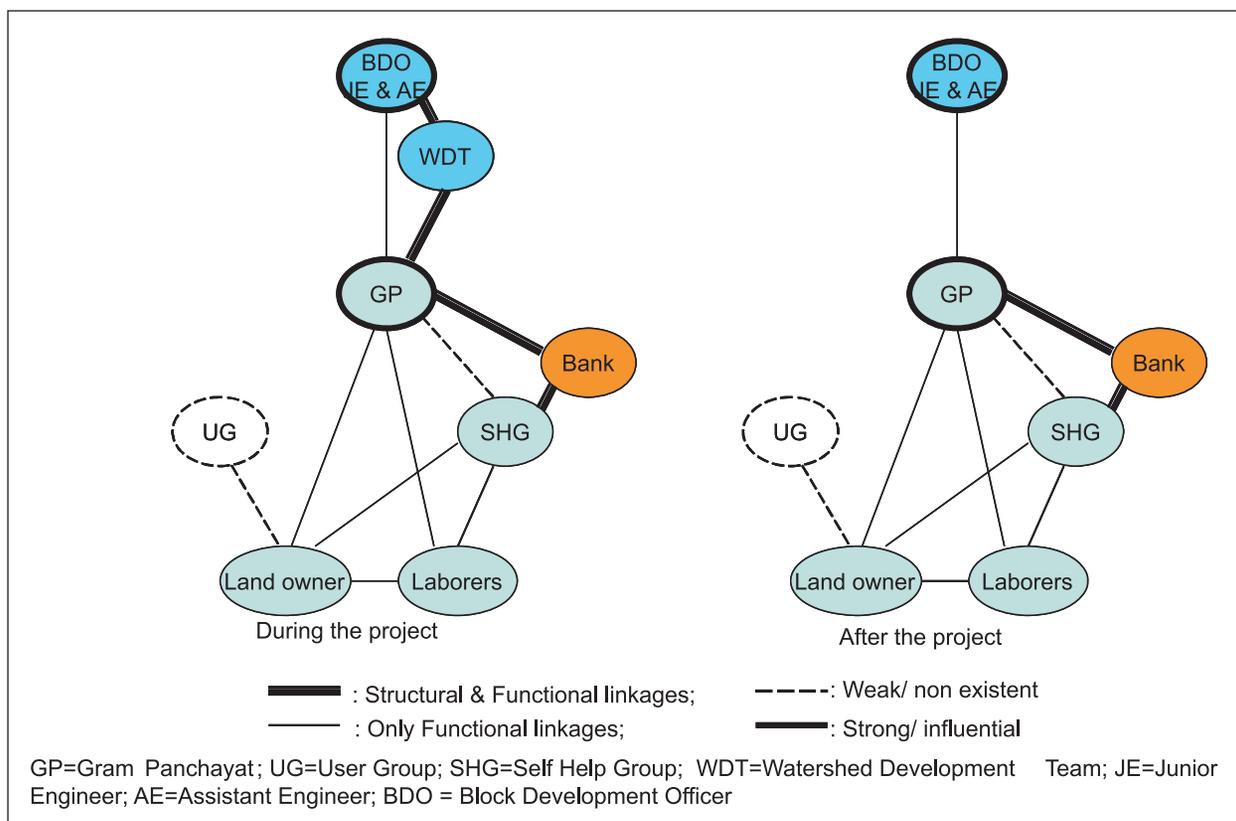
Figure 5. Institutional arrangements in Hariyali watersheds in Rajasthan, India.

From the responses it is apparent that in the Hariyali watersheds, involvement of women is absent/ marginal at different stages of the program. In Palthor village, the s*arpanch* is a woman. Inspite of this, responses have been negative for women's role in the program. Respondents indicated that though there are women ward members in the GP, they a just spectators in the decision-making process. While in APRLP and IGWDP programs women a confident about their role in the program. In these two programs women membership is 100 per cent and $\geq$ 50 per cent, respectively in the WIA. According to WIA members, higher composition of women in these decision-making bodies is one of the contributing factors for their confident participation in the program. In IGWDP watersheds, women said, their role in the VWC became more pronounced after increasing their membership from initial 30 per cent to 50 per cent in the VWC. In case of Sujala program, women members and SHG members said that their role in the program is to ensure the interests of women members are not neglected, which is mainly accessing project funds for different income-generation (IG) initiatives. They are in the stage of 'still improving' in negotiating with their men colleagues in the EC; while in case of APRLP watersheds, women said that they find raising their concerns in the WIA 'easy'.

There was an interesting informal institutional arrangement found in the watersheds of APRLP. Since SHG members are also laborers, when they identify any irregularities in watershed works, they pass on that information to the VO through their membership in the institution and thus support informal monitoring and quality checking. Discussions with PIA and WDT confirmed this and they attributed it to the ownership expressed by women members on the program (Box 2).

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Box 2. Mr. Dasarath and his WDT members from BAIF (PIA for Appayapalli watershed) said that women in these watersheds consider it as a rare opportunity accorded to them and they own the program. They work extra hours to ensure good quality of 'their program' to show to everybody that they can do better.

Box 3. In Morala village of IGWDP area, LG members said that they are traditionally getting benefited by selling broom sticks. Due to watershed program their livelihood source is being affected through reduced supplies and landowners having those bushes in their lands have started selling the raw material. In the discussion they felt that they could have discussed the issue with VWC or PIA for relevant interventions.

Laborers in the watersheds are organised into groups in APRLP and IGWDP programs. However, in all the four programs, LG members/laborers do not play any significant role in watershed project implementation/management. None of the WIA models a successful to bring in effective participation of landless in program management. The role of laborers is restricted to taking works and completing them in time to get payments. More than that, they don't visualise any role for them in the program. However, they said, through their wives in SHG, they are benefiting from different IGAs.

In Sujala program land owners/farmers are well organised in AG while in APRLP and IGWDP, farmers are organised into UGs. It is evident from the responses that, through AGs farmers are able to take part more actively in the program than through UG. The AGs are involved at all stages of the program while in case of UGs, farmers are involved to some extent during the planning stage while they play minimal role in implementation and monitoring stages of the program.

In Sujala and Hariyali watersheds, GP is involved in the program by making its members, part of the WIA. In other programs, WIA is a parallel body at the village level to the GP. It was found during interactions that in such cases, collaboration between these two important institutions depends solely on local dynamics. For instance, in the Sujala program, respondents said that, when sarpanch is part of EC, like in Anchatagiri watershed, there is better collaboration of GP with the program than when ward members are only representing GP in the EC (also see box 4). Among all the four programs, only in Hariyali watersheds, GP members responded positively concerning their role in the program. In all other programs, there were indifferent responses from GP representatives during discussions.

Box 4. In the Appayapalli village of APRLP area, sarpanch of GP is a woman. Since she is also part of SHG and VO, she supports smooth relationship between VO and GP. When enquired with the PIA staff, they have similar experiences in a few other watersheds where there are good relationships between VO and GP, when sarpanch is a woman.

It was interesting to note that, when it comes to incorporating women-related issues in the watershed or non-farm issues, only women in APRLP, IGWDP and Sujala programs have made an effort. This suggests that to ensure gender equity and spread of watershed benefits, it is beneficial to have physical representation of women in the WIA in adequate percentage (at least 50 per cent).

Organization of farmers/landowners

Farmers/land owners in the watershed are organised differently under different names in the four watershed programs. For the purpose of comparison, the word farmers' group (FG) is used to represent all these types of institutional structures.

Area Group (AG) of Sujala program: The watershed area is divided into mini watersheds based on drainage lines. Landowners of each of these mini watersheds (drainage blocks) are encouraged to become members of respective AGs. The membership is on voluntary basis and the groups are open for members who are interested to join at later stage. These groups adopt the best practices of SHG, such as regular meetings, thrift and credit activity, etc. Each of the AGs is represented in the EC through a member who is replaced on an annual basis. AGs are also made eligible to take up works contracts from SWS and implement in the lands of their members.

User Group (UG) of APRLP, IGWDP and Hariyali: Farmers who have adjoining lands of a common watershed structure are made into a UG. Members of UG are involved in creation and maintenance of that particular structure. Apart from this, no other activities are pronounced for these functional groups. In the Hariyali watersheds visited, the UG is not found. The respondents from these watersheds are not able to relate to any such institutional structure in their watersheds. However, it is mentioned in the guidelines that UG would be formed.

It was observed during the study that there are four major features that differentiate AGs from UGs. They are:

1. Size of the group: Members in the UGs are between four and six, while in AGs they are from 15 to 22.

2. Membership in the AGs was voluntary, which is not the case in UGs.

3. AGs were involved in program management while UGs do not have any specific functional responsibility in the program management.

4. The AGs meet regularly and are involved in thrift activities like the SHGs which is not the case for UGs

It is evident during the study that AGs are strong, active and sustainable while UGs are non-functional. Discussions revealed the following as reasons for strength of AGs:

- Since AGs are represented in the EC, which is the decision-making body for the program implementation, they feel responsible for better management of the program and thus get motivated (Response from all the stakeholder groups).

- Thrift and credit activity has created a platform where they meet regularly and discuss about issues of common interest, e.g., agriculture, livestock, etc. This helps in strengthening bonds among members (Response from all the stakeholder groups).

- Members are able to visualise some future for the institutional structure of AG (Response from AG and WDT/PIA)

- Through AGs loans are provided with nominal interest. In Nusvi watershed, they do not charge interest for one month on the loan taken for meeting the contribution requirement. (Response from AG).

- WDT and field staff spend quality time to groom them into a group and solve those initial obstacles of working in groups. They support AGs in the same way they support SHGs. This helps in better organization and functioning (Response from AG and PIA/WDT).

- Secondary stakeholders find it easy to articulate a message through AG to its members. Usually line department officials contact AGs for promoting/popularising specific activities among its members (Response from PIA/WDT/line department officials).

7. In many instances, AGs are made responsible for achieving the program targets. In order to do this, AG members try to motivate and support their fellow members to take up work and complete it, and in the process there is some legitimacy that is created for the institutional structure. Usually there is a healthy competition among AGs to achieve targets (Response from AGs).

During the exploration, it is found that no UG was functional at the time of study. In all the instances, UGs did not have a name or any such formal recognizing factor, members found it difficult to recognise other members of their group, there were no UG meetings or any such group activity. Following are the reasons identified by respondents in the watersheds for non-functional UG:

a. Once UG was formed there are no activities through UGs. All dealings are through individual members than through these groups. Because of this the UG members also do not see a significant contribution that they can make to the program by being members of these groups (all stakeholder groups in APRLP and IGWDP);

b. There is no effort for building them into an institutional structure other than categorising people having adjoining lands of a watershed structure as a UG (UG members in APRLP, IGWDP);

c. There is no activity in the program that treats them as a group and allows them to handle responsibilities (UG in APRLP and IGWDP).

Group size seems to be an important factor in contributing to the success of AGs over UGs, along with above mentioned factors. Group consisting of 15 to 20 members is usually considered as optimally sized group for functioning. Voluntary membership that is followed in formation of AG brings only willing and interested members together in a group and thus contributes to the principles of homogeneous and affinity groups.

Labor groups (LG)

Laborers in the watershed area are organised into groups in APRLP and IGWDP watersheds. The LG in IGWDP are facilitated to adopt best practices of SHG such as thrift and credit activity. In APRLP, LGs are approached by individual land owners for completing works in their respective fields and make payments to them. While in IGWDP, VWC engages LGs for works both on private and common lands and makes payments directly. This arrangement is found to be effective in avoiding exploitation of laborers.

In APRLP, members of LGs are not seeing any significant benefit by being in a group. However, they said that after getting organised into LGs, they are undertaking watershed works on a contract basis by agreeing for a lump sum amount to complete a particular work. Earlier they were going for work as individual laborers by receiving daily wages. In the new arrangement they are able to earn more money by working harder and completing the work in less time than normal and sharing the contract amount. They found this arrangement as useful and are adopting it for labor works outside watershed also.

The LG members in IGWDP watersheds find the institutional structure very useful. This is mainly because their dependency on external agencies for small financial needs has come down due to availability of money within the group through thrift and credit activity. Some members have also started small IGAs and are diversifying their livelihoods.

In all the watersheds visited, reduction in migration was observed due to watershed programs (Table 3). However, in *Anchatagiri* watershed, reduction in migration has been less in comparison to other watersheds. The reason for this is its nearness to the Hubli city where people from the village are

Table 3. Responses of LG members regarding reduction in migration and increase in labor days available per year per laborer.

Watersheds	APRLP		Sujala		IGWDP		Hariyali	
	Karivemula	Appayapalli	Anchatagiri	Nasvi	Morala	Jatdeola	Shishod	Palthor
% reduction in number of people migrate	70	80	20-30	80	80-90	90	80	70
% increase in total no. of labor days available for them	5-10	5-10	5	5-10	10	10	5-10	10

employed in brick kiln units, soap manufacturing units, pickle units, etc. During discussions they mentioned that they like jobs in the town as it is considered socially higher to be doing office type of jobs with monthly salaries.

It was interesting to note that the total number of labor days available per year per laborer did not increase significantly (Table 4) due to watershed programs. People, who were going out of villages for labor works, are able to find same number of days of work in their native villages. But it was evident during discussions that a few people in all the watersheds still prefer to migrate for better wages.

However, when enquired about their anticipation of the situation in the post-project phase, respondents in APRLP said, they would have to go back to the earlier situation but they were confident after the project as their lands have become productive to produce at least something (built up of natural resource capital) and they are strong in a group (built up of social capital). In Sujala, laborers said, migration would increase in comparison to the situation during the project period but would be less than pre-project situation mainly due to the IGAs started by women members of the family who are members of SHGs and enhanced productivity and increased cropping intensity with availability of irrigation facilities. In IGWDP watersheds, LG members said, the situation of reduced migration would continue as they have new financial sources to support during lean periods through thrift & credit activity in LG and SHG, and improved productive potential of their lands along with IG activities. In Hariyali watersheds, laborers told that, post-project situation would be similar to pre-project situation.

It is evident during the discussions that formation of LG is a useful institutional arrangement as it ensures building up of social capital and enhances negotiating power for the laborers. It would be more useful if best practices of SHGs are adopted by the LGs, making the institutional structure more stable and sustainable. Unorganised laborers get benefited from the program through increased labor opportunities, but only during the project period.

> **Box 5.** In Anchatageri watershed, due to its proximity to Hubli city (which is about 10 km away), there is shortage of labor for watershed works. But it is found to be beneficial for farmers as they are engaging migrant laborers from Chitradurga and Davanagere, who are willing to work for lower wages (eg: Rs.100 to 110 for one brass (1mX1mX1m) of earth work in comparison to Rs 150 to 160 charged by local people). Farmers said these migrant workers are hard workers and efficient than local people.

Integration of SHGs in the Program

Women in all the four programs are organised into SHGs and are integrated into respective programs. In case of APRLP and IGWDP, SHGs are networked at the village/watershed level into village organization (VO) and Samyukta Mahila Sangha (SMS), respectively. While VO is the WIA in APRLP, SMS plays an important role in IGWDP watersheds. Reponses from stakeholders indicate that SHGs are better integrated into watershed programs in case of APRLP and IGWDP (Table 2). In the other two programs, SHGs consider themselves as receivers of benefits from the program in terms of revolving fund and loans. The SHGs in APRLP and IGWDP are actively involved in decision making of watershed activities, execution of those selected activities, checking the quality of structures and conflict resolution. As discussed in earlier paras, in APRLP SHG members informally share information about irregularities in works with VO and ensure appropriate action.

Among all the programs, in case of Hariyali watersheds, SHGs are poorly organised and are treated as beneficiaries of the program. In these watersheds, SHG members do not find any role for them in the watershed program other than receiving funds and trainings for IGAs. This may be because in the Hariyali watersheds, SHGs are not made part of WIA. Poor organization of SHGs is due to the lack of social organizational support from a technically competent PIA and inadequate involvement of WDT (Tables 5 and 7).

However, it was indicated during discussions that, in the initial years, participation of SHGs in the program was not much, especially when they were formed newly for the program. In the beginning they focus on thrift and credit activity, and any benefits derived from the program such as loans, revolving fund, trainings, etc., were considered bonus. Starting from the second to third year onwards they realized their role in the program and started participating. This response has been common in all the watersheds visited, and thus suggests that when there are existing SHGs, program objectives could be easily met than by forming new SHGs for the program. This observation seems to support the idea of separation of a 'hands-on' capacity building phase as adopted in IGWDP where formation of CBO and building their competences for handling the program take place, from the main implementation phase.

Support Structures at the Watershed Level

The institutional structures evolved for supporting primary stakeholder institutions are very important in determining efficiency and sustainability of watershed programs, as they provide necessary handholding support to the CBOs and build their capacities to independently handle responsibilities by the end of the project period. Different arrangements tried in the four programs are discussed in this section.

Project Implementing Agency (PIA)

The PIA of the program is either a government department or a NGO supporting few watersheds in a region. With the support of WDT, PIA ensures implementation of the program in accordance with respective guidelines. In Sujala, APRLP and IGWDP watersheds, NGO is the PIA while in Hariyali watersheds *zilla parishad* (ZP), a district level *panchayat* institution supported by the Department of Land Resources is the PIA. From the stakeholder importance/influence matrix exercise and associated discussions, it is evident that in case of Hariyali watersheds, PIA seems to have higher importance and influence on the program. In other programs, PIA is considered less important but with higher

influence on the program at the watershed level (Table 6). Stakeholder performance assessment (Table 7) exercise in different watershed programs supports this view where it shows that in case of Hariyali watersheds PIA is involved fully in many aspects of the program while in other programs their involvement is partial or low. During semi-structured interviews it was evident that when PIA is considered important and influential, as in case of Hariyali watersheds, they play an active role in program management with WDT playing a smaller role; while in other programs, PIA plays the role of coordinator by delegating more responsibilities to WDT. Results from the stakeholder performance assessment exercises in different watersheds support this observation (Table 7).

Extent of PIA role in the program has an implication when the number of micro-watersheds handled by each PIA is more and PIA is actively involved in the program management. It becomes difficult for the PIA staff to ensure appropriate monitoring of the program. This observation has been supported by PIA staff's responses in Hariyali watersheds. According to them the functional part of each PIA consisting of one assistant engineer and two junior engineers are handling about 30 to 35 watersheds along with other responsibilities of the *ZP*. This makes it difficult for them to optimally contribute for the program. They suggested that a 'separate division' should handle watershed program.

Similarly, in other NGO supported watersheds, social organization was strong and thrift and credit activity was initiated with all types of CBOs formed as part of the program, irrespective of guidelines. This is found to be useful when balance is maintained between program objectives and organization's philosophy. In the Hariyali guidelines, it is mentioned that to avoid overemphasis on few activities related to the speciality of the departments selected as PIA, subject matter specialists from different line departments are to be involved for preparation of action plans. But during different stakeholder analysis exercises, it was evident that such interactions were not practiced. During associated discussions, respondents were of the opinion that every department is busy with their own activities and targets. Such recommendations are not practical in the absence of clear institutional arrangements. It is evident from discussions that informal institutional arrangements are not possible in this regard.

> **Box 6.** Stakeholder representatives from PIAs, WDTs and WIAs in different areas informally shared that when there are other responsibilities along with watershed program responsibilities, watershed program gets lower priority as it is considered 'complicated'. They say 'they can meet higher financial targets by spending same time in other programs', since 'work performance is usually measured by the financial targets achieved'.

Watershed Development Team (WDT)

The multi-disciplinary watershed development team **(**WDT) is a key institutional structure created for supporting the program at the watershed level. The composition and profiles of members are different in the four watersheds studied (Fig. 6). The WDT is a multi-disciplinary team responsible for about 10 micro-watersheds. In Sujala, APRLP and IGWDP, WDT is an integral part of the PIA while in Hariyali, WDT is external to PIA.

In APRLP and Hariyali watersheds, WDT members' profiles are similar. They are four in number with each of them coming from the disciplines of watershed, agriculture, animal husbandry and social sciences. In case of IGWDP and Sujala, different composition of WDT is evident. In the IGWDP the team consists of a social scientist called the social development officer, a woman social worker addressing gender integration and a technical officer who is generally a technical engineer (watersheds) or may be from the disciplines of agriculture or livestock. The team leader could be

from one of the above. In case of Sujala watersheds, WDT consisted of a team leader who is a generalist mostly involved in administrative part of the program assisted by a watershed manager who is an engineer/watershed expert and training officer who is with social sciences background with training skills. However, during the first and second phases, *taluka* (an administrative division of the district equal to the 'block' or '*mandal*' in other states) level government officials were part of WDT with agriculture officer as the team leader, and assistant horticulture officer and range forest officer as the other members of the team. In the third phase, WDT members are the staff of F-NGO recruited for the program.

Qualification of WDT members is supposed to be graduation and provision for relaxation is made when candidates are found to be having significant field experience in their respective fields of expertise. However in the field it is found that most of the WDT members are not graduates, especially for the disciplines of agriculture, horticulture, animal husbandry and forestry (Table 4).

Diploma holders or generalists are found in those positions. Respondents in all the watersheds told that this relaxation is not because they have significant amount of experience but because they do not find relevant people to come that far and work for the salary structure. Problem is severe with agriculture discipline while for animal husbandry discipline, diploma holders are available.

It is also found during semi-structured interviews that sharing of watershed responsibilities is a common sight among WDT members. It was said that for operational simplicity, each of the WDT member is made in-charge for a few watersheds. Individual WDT members are fully occupied by responsibilities of their in-charge-watersheds and they find no time for supporting their colleagues. Because of this situation, multi-disciplinary support is not provided for primary stakeholders. This is a common observation in APRLP, IGWDP and Hariyali watersheds.

It suggests from these observations that in Sujala and IGWDP programs, profiles of WDT members are more pragmatic. However, in IGWDP there is a visible tilt in balance towards social organization while Sujala is more balanced with the watershed team leader as a generalist and deals with administrative component of the program supported by the watershed manager, who is an engineering graduate, specializing in watershed structures while training officer is in charge of capacity-building activities.

From stakeholder analysis exercises and associated discussions, it is evident that in APRLP, Hariyali and IGWDP watersheds, more work is concentrated at the WDT level while in case of Sujala program WDT plays the role of a facilitator. This could be the reason why in these programs WDT members are forced to take up responsibilities of supporting a few watersheds per person and focusing on them. While in Sujala watersheds, WDT is intact and supports all the watersheds in a team. However, this is effective due to other institutional arrangements found in Sujala program such as: (1) creation of working linkages for CBOs with line departments (Table 5 and Fig. 2) and (2) recruiting good quality field staff to support WDT in carrying out responsibilities on their behalf in the watershed.

Field staff

In each of the micro-watershed, field staff are deployed to support primary stakeholder institutions. During stakeholder importance/influence exercise, it is evident that field staff are important for the program but with low/no influence on program decisions (Fig. 7). Except for Hariyali watersheds in other programs, field staff are found supporting CBOs. However, situation is different in various programs with regard to profiles of the staff and their roles.
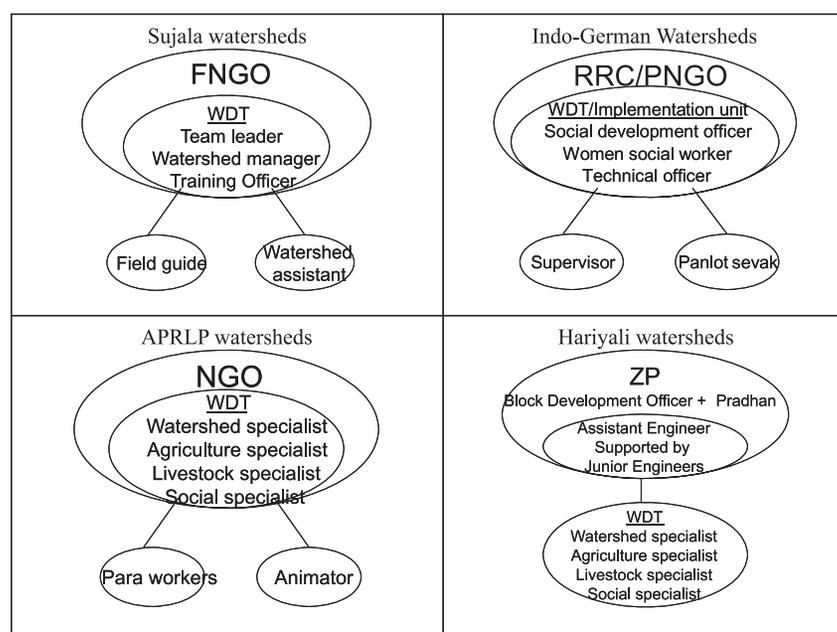
Figure 6. Watershed level support structures in the four watershed programs in India.

Table 4. Profiles of WDT members in the watersheds studied.

WDT members	Required qualification	Professional degree (yes/no)	Professional diploma (yes/no)
Sujala program			
team leader	Generalist – Graduation	Yes (2)	
Watershed manager	Degree/diploma – Engineer	Yes (2)	
training officer	Generalist-Training	Yes (2)	
APRLP			
Agriculture specialist	Degree/diploma – Agriculture	No	No
Livestock specialist	Degree/diploma – Animal husbandry	No	Yes (1)
Watershed specialist	Degree/diploma – Engineer	Yes (1)	Yes (1)
Social organizer	Degree – Social sciences	Yes (2)	
IGWDP			
Social development officer	Degree – Social sciences	Yes (2)	
Women social worker	Degree – Social sciences	Yes (2)	
Technical specialist	B.Tech (engineer)/agriculture /livestock	Yes (2)	
Hariyali			
Agriculture specialist	Degree/diploma – Agriculture	No	No
Livestock specialist	Degree/diploma – Livestock	No	Yes (2)
Watershed specialist	Degree/diploma – Engineering	Yes (1)	No
Social organizer	Degree – Social sciences	Yes (2)	

Note: Values in the parenthesis indicate how many watersheds out of the two projects studied in each of the programs have that particular profile.

In Sujala and APRLP watersheds, one of the two field staff is supporting the social organization aspect and they are called field guide and animator in respective programs. The other member of the field staff are technical persons. In Sujala she/he is called watershed assistant (WA) while in APRLP she/he is called para worker (PW) - agriculture or animal husbandry.

Similar to their respective WDT compositions, WA is a watershed expert while PW is from agriculture/ veterinary discipline. The WA plays a significant role in the program while PW is not that important in the program. The PW is more of a voluntary staff while WA is a formal staff with distinct roles and responsibilities. However, in the first and second phases of Sujala program agriculture assistant (AA), who is the village level functionary of the agriculture extension department, was playing the role of WA. In the third phase, a person has been recruited from open market due to changed program strategy and/or shortage of staff in the department to depute for the program (different reasons were given by different respondents).

In IGWDP watersheds there are two field staff – (1) supervisor - who looks after construction of watershed structures and (2) *panlot sevak* - who is an assistant for WIA for general program implementation. Salaries for these staff are paid by the WIA.

During semi-structured interviews and stakeholder performance matrix exercise (Table 5), it is evident that in IGWDP, field staff play the role of workers for the WIA, while in Sujala they are holding responsibilities of program facilitation at the watershed level in formation and strengthening

Note: ★ = primary SH opinion ◯ = secondary SH opinion
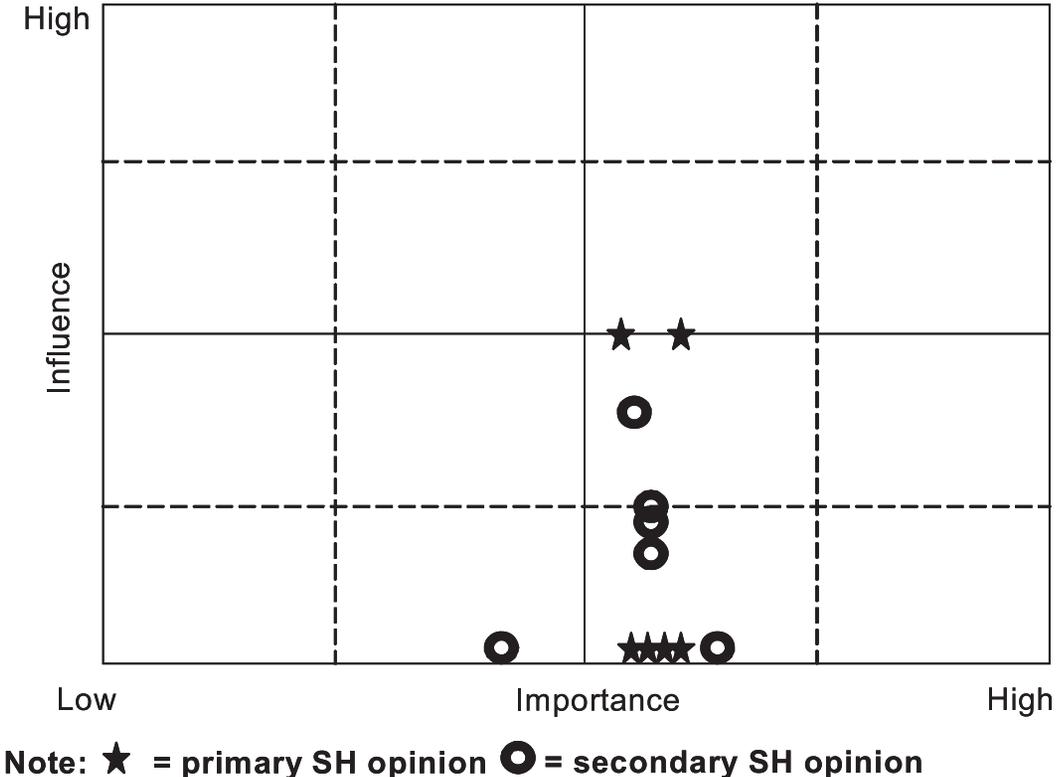
Figure 7: Importance-influence matrix results from all watersheds for 'field staff'.

of CBOs, and supporting them in program implementation. In this case there seems to be devolution of responsibilities of WDT to the field staff. In APRLP, the animator is a field worker for the WIA/SHG while PW is a voluntary person supporting land holders/farmers in technical aspects.

However, there is a clear distinction between Hariyali and the other three programs in this regard. While in other programs, roles, responsibilities and profile of the field staff are clearly specified; in Hariyali, there is an option for GP to recruit volunteers for supporting in their activities. It is observed during the study that, when profiles of field staff are specified, effort was made to identify suitable people. It was found during semi-structured interview concerning role performance, field staff had clarity about their roles and responsibilities. This has a bearing over the program where they are the important repository of information concerning primary stakeholders and they support WIA in day-to-day management of the program. In case of Hariyali watersheds, field staff are not recruited in the studied area.

Monitoring by an independent agency

During stakeholder analysis exercises with different watershed level stakeholders in Sujala watersheds, it is interesting to note that all of them mentioned about the independent monitoring and evaluation agency called ISRO – ANTRIX as an important stakeholder supporting the program at the watershed level. In stakeholder importance/influence matrix exercises, this agency has been given the rating of high importance and high influence (Table 6) in both the watersheds by primary and secondary stakeholder representatives. The Sujala program has involved ISRO – ANTRIX for concurrent monitoring of the performance of the program. The staff of the agency are placed in each of the program districts, who visit field sites at random on a continuous rotation basis so that they cover the whole area. Their observations are submitted to the watershed development department (WDD), which is a state level implementing agency, on a monthly basis which are passed on to respective district watershed development officers (DWDO) for further action.

This institutional arrangement has been found to be very useful by all stakeholders, especially in a program like Sujala where complete responsibility of watershed fund management at village level is with the WIA. However, discussions with WIA, WDT, FNGO and LNGO about the issue of policing Vs social auditing remained inconclusive with divergent views. They all seem to support the view that some extent of policing is practical, though it may not be ideal. During associated discussions there was an important remark from AG representatives in Anchatageri watershed. They said, during these visits, if they can not find any irregularities, it would go as praise for the performance of their watershed. It gives them good feeling to have that from an independent agency. However, such an agency need to ensure that their field staff do not get involved in institutional politics and maintain their independence.

> **Box 7.** Usefulness of independent agencies monitoring was hailed by all the stakeholders. The agency has unearthed cases where cheques have been issued on some works and money has been drawn, but work has not yet been initiated. Respondents told that, since the monitoring is concurrent, curative measures are possible to avoid repetition of such cases.

Interactions among Different Institutional Structures

After looking at the types of institutional structures evolved for implementation of the programs, it is imperative to understand interactions between sets of them, to get full picture of institutional arrangements. For the current study these interactions are captured by analysing the nature of linkages among institutional structures, and reflection of each institution about others concerning their importance/influence in the program and performance of roles. Results are presented in the following sections.

Linkages between institutional structures

Linkages between sets of institutions are the result of formal and informal procedures evolved for project implementation and management. In order to assess these linkages three criteria are used. (1) type of linkage (structural/functional), structural linkage is the one when two institutional structures have a formal mechanism of interaction such as membership, regular mandated meetings, regular mandatory reports, etc. Functional linkage refers to informal mechanisms of interaction such as joint activities, informal and non-regular meetings/reports, etc.; (2) intensity of the linkage (good/ moderate/poor); and (3) sufficiency/insufficiency of the linkage.

The analysis is undertaken through stakeholder linkage matrix exercises with representatives from different institutional structures separately. Results from these exercises are pooled and presented in the following table (Table 5). Considering the fact that these are collective responses from mature institutional structures after experiencing the program for a considerable period of time (3 to 4 years), it is assumed that results indicate actual status of the interactions.

Key observations from the analysis

While linkage mechanisms and their performance is self-explanatory from the Table 5 and some observations have been noted in earlier sections, the following are the key derivations from the table.

- It is evident from the study that the institutional arrangements followed in Sujala watersheds ensure better participation of farmers group (FG) and SHGs in program management, while in APRLP and IGWDP, SHGs are integrated into the program but there is inadequate involvement of FG. In case of Hariyali watersheds both SHGs and FGs are not integrated into program management. This has a bearing on the efficiency and sustainability where better involvement of primary stakeholders in the program can contribute significantly for ownership of locals on the program activities.

- Working linkages between WIA and GP is important for sustainability of the program, as conflicts between these two institutions can cause problems in maintenance of watershed structures in the post-project phase. It is apparent from the exercises that in case of Hariyali watersheds there is absolute unison between these two institutions as GP is the WIA while in Sujala structural linkages have been established but functional linkages are not there. In case of institutional arrangements in APRLP and IGWDP watersheds, there are no linkages promulgated between GP and WIA through respective programs; however, local dynamics results in good or bad relationships between these institutions.

- Farmers' groups (FG) are very important institutional structures which can play an active role at various stages of the program and ensure post-project management of the watershed development initiatives. They also play a very important role in ensuring optimal utilization of augmented

natural resources of the watershed and increase productivity of the area. Linkages between this institution and line departments, which provide technical knowledge, are found to be insufficient in all the programs. There is a need to facilitate structural and functional linkages between these two institutions.

Stakeholders' importance/influence in the program

In an effort to understand how different institutional structures are positioned in each of the programs, stakeholder importance/influence matrix exercises are conducted separately with different stakeholder groups in each of the watershed to get true picture of the situation. Credibility of the results is ensured through collecting unanimous and collective responses from about 30% of the representatives from each stakeholder category. For the sake of convenience of discussion, results from those matrices are collected and presented in Table 6.

Key observations from the exercises

- Social organization in Hariyali watersheds seems to be inadequate. This observation emerges from the fact that there are no functional UGs and both primary stakeholders and secondary stakeholders were not able to recognize any such institutional structures in the program. And also, in these watersheds SHGs are considered to have no major role in watershed program, concurring with observations mentioned in the earlier sections. While in APRLP, SHGs are considered important and influential owing to their institutional set up of apex body of SHG being the WIA. Though SHG apex body is important and influential in IGWDP, SHGs are considered important but without influential role by the primary stakeholders. But secondary stakeholders feel they are both important and influential in the program. This dichotomy of opinion by two sets of stakeholders could be understood as the difference between what the actual status is and what is intended in the program. In case of Sujala watersheds, SHGs are considered as highly important but with less influence on the program.

- Labor in watersheds are organized into groups only in APRLP and IGWDP. However, in IGWDP these groups are considered of high importance with low influence while in APRLP they are considered less important with low influence on the program. This situation is due to the fact that in the institutional arrangements followed in the IGWDP, more importance is built for these vulnerable sections by –

  1. making payments directly to LGs; and

  2. promoting thrift and credit activity, for these groups, by providing some revolving fund. While in APRLP, no such activities have been found during the study.

- Among the four programs, only in Sujala program the FG (AG) is considered both important and influential, while in others UGs are considered important but not influential. During associated discussions, it is expressed that UGs are not performing their intended role due to poor organization; while the opposite is true in case of AGs.

- The independent monitoring and evaluation agency, which is a unique institutional arrangement in Sujala watersheds, is considered important and influential by both primary and secondary stakeholder respondents. Their contribution in the program through continuous and concurrent monitoring of the program and highlighting pitfalls, if any, was appreciated during associated discussions.

- The GP in Hariyali watersheds is enjoying high importance and influence owing to the fact that it is the WIA, while in IGWDP, GP is considered less important and with low influence by the primary

Table 5. Linkage scenario in four watershed programs.

	Programs	WIA	FG	SHG	SHG apex body	WDT	Field staff	PIA	Line dept	GP
WIA	Sujala		S&F G√	S&F G√	---	F M√	S&F G√	F G√	F PX	S M√
	APRLP		F M/PX	S&F G√	S&F G√	S&F G√	S&F G√√	F M√√	Need	F PX/G√√
	IGWDP		F PX	S&F G√√	S&F G√√	S&F G√√	S&F G√√	F M√√	Need	Need
	Hariyali		F PX	PX	---	S&F M/GX	---	S&F G√√	F G√√	S&F G√√
FG	Sujala	S&F G√√		S M√√	---	F M√√	S&F G√√	F P√√	Need	No linkage
	APRLP	F P√√		No linkage	F M√√	F PX	F/S&F MX	No linkage	Need	No linkage
	IGWDP	F P√√		No linkage	F M√√	F PX	F P√√	No linkage	Need	No linkage
	Hariyali	---		---	---	---	---	---	---	---
SHG	Sujala	S&F G√√	S M√√		---	F M√√	S&F G√√	F M√√	No linkage	No linkage
	APRLP	S&F G√√	No linkage		S&F G√√	S&F G√√	S&F G√√	F M√√	No linkage	No linkage
	IGWDP	S&F G√√	No linkage		S&F G√√	S&F G√√	S&F G√√	F M√√	No linkage	No linkage
	Hariyali	F PX	---		---	S&F MX	---	No linkage	No linkage	No linkage
SHG apex body	Sujala	---	---	---		---	---	---	---	---
	APRLP	S&F G√√	F M√√	S&F G√√		S&F G√√	S&F G√√	F G√√	No linkage	F PX/G√√
	IGWDP	S&F G√√	No linkage	S&F G√√		F G√√	S&F G√√	F M√√	No linkage	No linkage
	Hariyali	---	---	---		---	---	---	---	---
WDT	Sujala	F G√√	S&F G√√	F M√√	---		S&F √√	S&F G√√	F G√√	F G√√
	APRLP	S&F G√√	F GX	S&F G√√	S&F G√√		S&F G√√	S&F G√√	F PX	F M√√
	IGWDP	S&F G√√	F MX	S&F G√√	S&F G√√		S&F G√√	S&F G√√	F PX	F PX
	Hariyali	S&F MX	---	S&F PX	---		S&F G√√	W&F G√√	F PX	S&F MX
Field staff	Sujala	S&F G√√	S&F G√√	S&F G√√	---	S&F G√√		F G√√	F MX	S&F P√√
	APRLP	F/S&F G√√	F GX	S&F/F G√√	S&F/F G√√	S&F G√√		F M√√	F PX	F P√√
	IGWDP	S&F G√√	F MX	S&F G√√	F G√√	S&F G√√		F M√√	Need	No linkage
	Hariyali	---	---	---	---	---		---	---	---

Contd…..

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	Programs	WIA	FG	SHG	SHG apex body	WDT	Field staff	PIA	Line dept	GP
PIA	Sujala	F G√√	F P√√	F P√√	---	S&F G√√	S&F G√√		F P√√	
	APRLP	F G√√	No linkage	F P√√	F M√√	S&F G√√	F M√√		F P√√	
	IGWDP	F G√√	No linkage	F P√√	F M√√	S&F G√√	S&F M√√		F P√√	
	Hariyali	S&F G√√	---	No linkage	---	W&F G√√	---		S&F G√√	
Line dept	Sujala	S&F G√√	F G√√	No linkage	---	F G√√	F M√√	S&F G√√		
	APRLP	F PX	F PX	No linkage	No linkage	F P√√	F PX	F PX		
	IGWDP	No linkage	No linkage	No linkage	No linkage	F P√√	No linkage	No linkage		
	Hariyali	S&F G√√	---	No linkage	---	S&F G√√	---	S&F G√√		
GP	Sujala	S M√√	S&F M√√	S&F M√√	---	F P√√	No linkage	F G/M√√	F M√√	
	APRLP	F M/PX	No linkage	No linkage	F PX	F PX	No linkage	F P√√	No linkage	
	IGWDP	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	F P√√	No linkage	
	Hariyali	S&F G√√	---	No linkage	---	S&F MX	---	S&F G√√	F G√√	

Table 5. Continued….

Note: S&F = Structural and functional linkage; S = only structural linkage; F = only functional linkage; √ √ = Sufficient X = Not sufficient; Need = Need for linkage; P = Poor; M = Moderate; G = Good

stakeholders but secondary stakeholders feel the village level PR institution is important for the program but with low influence. In case of Sujala watersheds, contradicting opinions are expressed. Both primary and secondary stakeholder groups opined that GP is less important in the program but in one watershed they are found influential while in the other watershed they found them to be less influential too. This is probably because in the first watershed GP *sarpanch* represents GP in the WIA. In APRLP watersheds, both primary and secondary stakeholders ranked GP to be less important and with low influence, reflecting the growing importance of VO at village level by getting more responsibilities from the government when it is channelling different programs through this women's organization. When there are no formal structural and functional linkages created between watershed institutions and GP, relationships between them seems to depend on the local dynamics.

- The institutional structure of WDT is considered important in all the programs but in APRLP and IGWDP they are considered influential also, indicating their intensive involvement in the program. In Sujala program WDT plays a facilitator's role giving more role for field staff to support CBOs in the watershed. Moreover in this program, the role of cheque signatory remains solely with the WIA, unlike in other programs. In case of Hariyali watersheds, WDT appears to be a more downgraded structure with regards to influence in comparison to all other programs, which is evident from the discussions with respondents from the program. In this program their role is limited to be trainers to CBOs.

Line departments are considered important with low influence in all the programs except Hariyali watersheds. In APRLP and IGWDP watersheds, respondents said they are not sufficiently involved in the program.

Reflection of institutional structures about each other's performance

Through semi-structure interviews and stakeholder role matrix exercises, conducted separately with different stakeholder groups, reflection of each institutional structure about others in the program has been captured. Results are pooled and presented in the following Table 8. It is interesting to note that respondents in both the sample watersheds of each of the program gave similar responses during discussions. This seems to suggest that, institutional arrangements play significant role in determining the participation and performance of roles by individual stakeholder groups.

While the Table 8 is self-explanatory and a few observations have been noted in the previous sections, the following are the key derivations from the table:

- the WIA is involved in all relevant aspects of program implementation in all the four programs; however they are dependant on WDT/PIA in establishing working linkages with relevant agencies. This competency needs to be built for sustainability of WIA and ultimately the program initiatives;

- the FGs in Sujala watersheds, i.e., AGs, are involved in all relevant aspects of the program in contrast to other programs. As mentioned in earlier chapters, this institutional arrangement has the potential to ensure better participation and ownership of landowner communities in natural resource management in the watershed;

- integration of women in the program has been attempted through SHGs in all the programs. Results indicate that their involvement has been moderate in APRLP, Sujala and IGWDP watersheds while in Hariyali, it is minimal;

- the involvement of GP in the program is higher in Hariyali watersheds owing to the village level PRI being the WIA in the program. In Sujala watersheds, GP is involved to some extent through its ward members being members of the executive committee of the WIA. In spite of this, involvement of GP is not rated as high by the respondents. In other programs, GP is not involved adequately with IGWDP watersheds with least or no involvement of GP in the program.

Table 6. Results from the importance – influence matrix exercises in all the watersheds.

Stakeholders	Sujala				APRLP				IGWDP				Hariyali			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
WIA	√√ ΦΦ				√√ ΦΦ				√√ ΦΦ				√√ ΦΦ			
FG	√ ΦΦ	√				√√ ΦΦ				√√ ΦΦ			---	---	---	---
SHG		√√ ΦΦ			√√ ΦΦ				ΦΦ	√√						√√ ΦΦ
LG	---	---	---	---		√		√ ΦΦ		√√ ΦΦ			---	---	---	---
SHG apex body	---	---	---	---	√√ ΦΦ				√√ ΦΦ				---	---	---	---
GP			√ Φ	√ Φ				√√ ΦΦ		ΦΦ		√√	√√ ΦΦ			
PIA	√	√ ΦΦ			√	√ Φ	Φ			√√ ΦΦ			√√ ΦΦ			
WDT		√√ Φ	Φ		√√ ΦΦ				√√ ΦΦ					√√ ΦΦ		
Field staff		√√ ΦΦ				√√ Φ		Φ		√√ ΦΦ			---	---	---	---
Line department	Φ	√√ Φ				√ ΦΦ		√		√ Φ	Φ	√	√√ ΦΦ			
Independent monitoring agency	√√ ΦΦ				---	---	---	---	---	---	---	---	---	---	---	---

Note: 1 = high importance & high influence; 2 = high importance & low influence; 3= low importance & high influence; 4 = low importance & low influence; √√ = response from primary stakeholder group in one sample watershed; Φ = response from secondary stakeholder group in one sample watershed; FG = indicates only the Farmers Group (AG/UG) but not individual farmers

Table 7. Stakeholder performance assessment.

	WIA				FG				SHG apex body				SHG				GP				WDT				Field staff				PIA				LINE DEPT			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Identification of watershed activities	=G	=G	=G	=G	=G	-G	-G	-G		=G	-G		0	0	0	0	-M	0	0	=G	=G	=G	=G	-G	=G	-G	=G	=G	-M	-M	-M	=G	=G	0	0	=G
Decision on watershed activities	=G	=G	=G	=G	=G	-M	-M	-M		=G	-G	-G	-M	-M	-M	0	-M	-M	0	=G	=G	=G	=G	-G	-G	-G	-G	-G	-G	-G	-G	=G	0	0	0	=G
Action plan preparation	-M	-M	-G	-M	-G	0	0	0		-M	-M		0	0	0	0	0	0	0	-M	=G	=G	=G	-M	=G	0	0		=G	=G	=G	=G	0	0	0	=G
Execution of activities	=G	=G	=G	=G	=G	-M	-M	-M		=G	-G		-M	-M	-M	-P	-P	-P	-P	-M	-G	-G	-G	-M	=G	-G	=G	=G	-M	-M	-M	=G	0	0	0	=G
Checking the quality of works/ activities	=G	=G	=G	=G	=G	0	0	0		=G	-G		0	-G	-M	0	0	0	0	=M	-G	=G	=G	-M	=G	-M	=G	=G	-G	-G	-G	=G	0	0	0	=G
Payments	=G	=G	=G	=G	0	0	0	0		=G	0		0	0	0	0	0	0	0	=G	-G	=G	=G	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance of structures in private lands	-G	-G	-G	-G	=G	-M	-M	-M		-G	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Maintenance of structures in common lands	=G	=G	=G	=G	=G	-M	-M	-M		=G	0		0	0	0	0	=P	=P	=P	=G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Knowledge inputs on watershed structures	0	0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0	=G	=G	=G	=G	=G	-M	=M	=M	=G	=G	=G	=G	0	0	0	0
Knowledge inputs on agriculture	0	0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0	=M	=M	=M	=P	-P	-P	-P	-P	-M	-M	-M	-M	-M	-M	-M	-M
Knowledge inputs on livestock	0	0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0	=M	=M	=M	=P	-P	-P	-P	-P	-M	-M	-M	-M	-M	-M	-M	-M
Knowledge inputs on social organization	0	0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0	=G	=G	=G	=P	=G	-P	-P	-P	-M	-M	-M	0	0	0	0	0
Knowledge inputs on gender	0	0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0	=G	=G	=G	=P	=G	-P	-P	-P	-M	-M	-M	0	0	0	0	0
Resolving conflicts	=G	=G	=G	=G	0	0	0	0		-G	=G		-	-G	-G	0	0	0	0	0	0	=G	=G	-G	-G	0	0	0	0	0	0	=M	0	0	0	0
Creating and sustaining linkages with agencies	-M	-M	=G	-P	0	0	0	0		-M	0		0	0	0	0	0	0	0	-P	=G	=G	=M	=P	0	0	0	0	-G	-G	-G	-P	0	0	0	0
Monitoring CBOs and field staff	=G	=G	=G	=G	0	0	0	0		=G	-G		0	0	0	0	0	0	0	=G	=G	=G	=G	-P	=G	-G	-G	-G	-G	-G	-G	-G	0	0	0	0

= : fully involved; - : partially involved; 0 : not involved; Good (G) : all stakeholders satisfied with role performance, Moderate (M) : not all stakeholders satisfied with role performance; Poor (P) : Poor performance of roles; 1: Sujala watersheds; 2 : APRLP watersheds; 3 : IGWDP watersheds; 4 : Hariyali watersheds

Post Project Sustainability

Post-project sustainability is very important to achieve true objectives of the program. However, it continuous to be a challenge, particularly, in the mainstream programs funded by the government. This is happening inspite of adopting participatory-friendly-guidelines since about one decade (Goel 2002). Low level of sustainability appears to be largely due to un-sustainability of CBOs developed under the program (WASSAN 2005).

It is a well documented fact that the success of watershed program often relies on strong backward (input-delivery system) and forward (post harvest system) linkages established during the project phase (Joshi et al. 2004). These linkages would ensure harnessing of the productive potential created due to watershed development activities. Linkages with credit sources and markets would support any regular economic activities initiated in FG, LG and other CBOs. Such economic activities, as suggested from the success of SHG movement, acts as a binding force between members and ultimately lead to sustainability of CBOs. Linkages with resource agencies are imperative for WIA to persist with natural resources management in the post-project phase, as it is necessary for the local community to continuously upgrade their knowledge and skills to deal with emerging situations.

In the following sections post-project institutional arrangements envisaged by different programs are discussed. Following the justification given in the previous paragraphs, broadly two criteria for sustainability have been considered to compare different programs with regard to post-project sustainability. They are –

(i). whether necessary forward and backward linkages are established; and

(ii). whether different institutional structures evolved during the program are sustainable.

Forward and Backward Linkages

Important agencies with which forward and backward linkages are required for successful watershed development are – technology exchange mechanism, input and output delivery mechanisms (markets), credit delivery systems, seed sector and labor markets (Joshi et al. 2004). In line with this, stakeholder analysis exercises in the four watershed programs have identified the following stakeholders as important for watershed development (Fig. 1). They are – *gram panchayat*, banks, resource agencies, minor irrigation department, NGOs, water users associations, market and line departments.

If we compare the four projects with regard to their success in establishing linkages with these institutions, it is evident from the study that in case of Hariyali and Sujala watersheds structural and functional linkages are established with GP and line departments (Figs. 2 and 5). However, GP is involved strongly in Hariyali watersheds in comparison to Sujala watersheds. In case of Sujala, structural linkage is created with GP through drawing two members from the GP into the EC. Functional linkage is also created by giving the responsibility of implementation of entry point activity through GP. That initiative is supposed to continue during project implementation to help cement the linkage between GP and WS institutions. However, during the study it was observed that participation of GP is different in different watersheds. If the *sarpanch* happens to be from the watershed village, there is a good coordination with the watershed activities, in other cases, where ward members are represented in the EC, the functional linkage with GP is weak.

Table 8. Linkages facilitated by institutional arrangements in four watershed programs.

	Sujala	APRLP	Hariyali	IGWDP
GP	S & F linkage	No	S & F linkage	No
Local NGO	S & F linkage	S & F linkage	No	S & F linkage
Markets	No	No	No	No
Banks	S & F linkage	S & F linkage	S & F linkage	S & F linkage
Technology transfer mechanism – line departments				
Agriculture	S & F linkage	F linkage	Only with one department which is the PIA of the watershed	No
Veterinary	S & F linkage	F linkage		No
Forestry	S & F linkage	F linkage		F linkage
Horticulture	S & F linkage	F linkage		No
Note: S = Structural linkage and F = Functional linkage				

In APRLP and IGWDP watersheds, program does not actively promote linkages with GP. But in the post-project phase GP is supposed to play a bigger role in management of the assets created by the program. There is no clarity among watershed level actors on how WIA and GP work together in the post project phase. However, in the guidelines of APRLP it is mentioned that important role has to be played by the *panchayat raj* institutions in watershed programs. The CEO of *ZP* becomes member of DWDC. The *panchayat raj* institutions have the right to monitor and review the implementation of the program and provide guidance for improvements. At the village level, GP has to be involved in trainings and community organization. But in practice it was noted that this hardly takes place. They are supposed to support the formation of CBOs, operation & maintenance of assets. They are also supposed to draw funds from Ministry of Rural Development (MORD) to supplement and complement the program. In the watersheds visited, these activities are not found. In one of the APRLP watersheds visited, a weak functional linkage is observed with GP, where *sarpanch* is a woman and she participates in VO activities. Apart from her participation in VO activities, there is no involvement of GP in the watershed program. However, in the post-project phase, project is supposed to hand over all the assets created to the GP, especially those in the common lands. There is no clarity on how VO and GP are related in the post-project phase.

Concerning linkages with line departments, in Sujala watersheds all relevant line departments are linked to the CBOs while in Hariyali watersheds only that line department which is the PIA is strongly linked to the WIA. Establishing linkages with other line departments is left to the activeness of the PIA/WDT. In APRLP watersheds, functional linkages are created with different line departments through WDT's initiative, while in IGWDP watersheds, functional linkage with forest department is established through the *Vana Samraksha Samithi* (VSS) activities. No linkage is noticed with other line departments. In associated discussions, WDT/PIA members are of the opinion that, it is not facilitated with a fear of dilution of contribution philosophy (contribution philosophy as explained by the WDT/PIA members is – program enforces necessary contribution from watershed members to facilitate ownership of the initiatives) of the program with subsidy philosophy (subsidy philosophy as explained by the WDT/PIA representative is – most of the program activities are driven by subsidies) of the department. However, during discussions they felt the need to facilitate linkages with line departments as they are the potential knowledge repository available locally for the watershed community. Linkages with banks have been created in all the programs. These linkages are strong and have the potential to continue in the post-project phase.

In APRLP, Sujala and IGWDP watersheds, NGOs are involved in the program to ensure social organizational support for CBOs. Discussions suggested that these linkages will continue in the post-project phase in some form due to the rapport built between these agencies. In Hariyali watersheds this support is not envisaged.

Sustainability of CBOs

To estimate the sustainability of the CBOs formed as part of watershed programs, the following proxies are identified through brain storming among team members. The CBOs of different watersheds are rated against the criteria and results are presented in Table 9.

From the study it is evident that WIA and SHGs in all the programs have the potential to be sustainable. FGs are sustainable only in Sujala program while in APRLP and IGWDP watersheds they are not sustainable as they are meeting none of the criteria used for assessing sustainability. LGs are not present in Hariyali and Sujala programs. In APRLP and IGWDP, LGs appear to be sustainable. However, in IGWDP watershed LGs is thrift and in APRLP it is a contract mode of labor work.

Table 9. Potential for sustainability of different CBOs created in the four watershed programs.

	Active at the end of the program	Common economic activity	Regular meetings (post project)	Homogeneous	Forward/ backward linkages
WIA					
Sujala	Yes	No	No	No	Yes
IGWDP	Yes	No	No	No	Yes
Hariyali	Yes	No	Yes	No	Yes
APRLP	Yes	Yes	Yes	Yes	Yes
FG					
Sujala	Yes	Yes	Yes	Yes	Yes
IGWDP	No	No	No	No	No
Hariyali	---	---	---	---	---
APRLP	No	No	No	No	No
SHG					
Sujala	Yes	Yes	Yes	Yes	Yes
IGWDP	Yes	Yes	Yes	Yes	Yes
Hariyali	Yes	Yes	Yes	Yes	Yes
APRLP	Yes	Yes	Yes	Yes	Yes
LG					
Sujala	---	---	---	---	---
IGWDP	Yes	Yes	Yes	Yes	---
Hariyali	---	---	---	---	---
APRLP	Yes	Yes	---	Yes	---

Conclusions

Following are the key conclusions drawn from the study.

- Institutional arrangements in Sujala and Hariyali watersheds ensure that WIA is an independent body. In case of APRLP, WIA depends heavily on WDT in all the aspects of program management. In IGWDP also there is significant dependence of WIA on WDT.

- The institutional structure of WIA in Sujala ensures participation of farmers and women in the program management. While in APRLP and IGWDP participation of women in WIA activities is higher due to their significant representation in the managing body but farmers are not adequately involved in the program. In Hariyali watersheds, WIA does not ensure participation of women or farmers in program management. None of the WIA structures ensures participation of landless and laborers in program management.

- Women members of the watershed participate more pronouncedly in program management when their physical representation in the WIA is in adequate percentage viz. at least 50 per cent. Primary role of women members in the WIA is considered as negotiating for their share of project funds for IGAs. After this role, subsequent importance is given for incorporating women related issues in the program. Capacity development of women and their empowerment will aid in better integration of gender issues in the program.

- To promote active collaboration of watershed institutions with *panchayati raj* institutions, there is a need for establishing structural and functional linkages through guidelines. In the absence of which, collaboration between these two institutions depend on local dynamics.

- GP is better integrated into the program in Hariyali watersheds followed by Sujala watersheds. In APRLP, the collaboration is determined by local dynamics. In case of IGWDP watersheds, there is negligible involvement of GP in the program.

- Farmers are better organized in the institutional structure of AGs than in UGs. The AGs are active during the program, participate in program management and possess qualities to be sustainable in the post-project phase. In contrast, UGs are inactive during the program, do not participate in program management and do not promise sustainability in the post-project phase. Institutional structure of AGs, their functional role in the program management, adoption of best practices of SHGs combined with capacity-building attention received by the AGs are the drivers for success of AGs.

- SHGs are integrated well into the program in APRLP, Sujala and IGWDP watersheds. In the initial years of their formation, main focus is on their group activities with no attention towards program activities. Once their group dynamics are in place, they are paying attention towards program activities. This suggests that, separation of capacity building phase, during which time different CBOs are formed and stabilised, from the main implementation phase is required for appropriate integration of SHG into the program.

- Organising landless, laborers into LGs is a useful institutional structure as followed in APRLP and IGWDP. This ensures build up of social capital and enhances negotiating power of laborers. However, if these LGs adopt best practices of SHG such as regular meetings and thrift and credit activities, this institutional structure is more stable and sustainable. Unorganised laborers are getting benefited during the program through better labor opportunities, but they think, they may return to the pre-project situation at the completion of the project.

- In Hariyali watersheds more responsibilities of supporting primary stakeholder institutions are held at the PIA level, with WDT playing a smaller role. In Sujala watersheds, there is decentralized support system with devolution of responsibilities to WDT and field staff. In this institutional arrangement field staff plays a major role in supporting watershed CBOs while WDT supports field staff and monitors their functioning. PIA plays a distant role by coordinating activities of WDT and monitoring their functioning. In APRLP watersheds, WDT works closely with WIA in program management and plays a major role in supporting CBOs. In this institutional arrangement, field staff play a smaller role. Similarly in IGWDP, field staff are the workers of WIA while the main responsibility of supporting watershed CBO is handled by WDT. The PIA plays a coordinator's role in the program.

- It is found to be efficient to decentralize the support system for primary stakeholders institutions, to the watershed level field staff, as found in the case of Sujala institutional arrangements. In other cases when this responsibility is held at higher levels viz. WDT or PIA, there is sharing of the responsibility of supporting few watersheds by each of the WDT members; which is ultimately resulting in inadequate multi-disciplinary support to watersheds.

- Profiles of WDT members seem to be practical in case of Sujala and IGWDP watersheds, especially in a situation where technically qualified people are not easily found to work in watersheds.

- Institutional arrangements in Hariyali watersheds are not providing efficient social organizational support for CBOs. The watershed CBOs in this program are found to be weak and unsustainable.

- The institutional structure of an independent monitoring agency created in Sujala program is found suitable for the completely independent WIA structure of Sujala watersheds. Respondents from all sections of the watershed program are supporting the idea of some kind of policing through this structure to support social auditing, in transparent program implementation. However, care needs to be taken to identify and select a professional/neutral organization of repute to take up this task.

- Post-project sustainability – forward/backward linkages created: In all the programs linkage with banks are established. Linkages with GP are strongly established with watershed CBOs in Hariyali watersheds; while in Sujala program, structural linkages are created but functional linkages depend on local dynamics. In APRLP and IGWDP linkages between these two agencies are not effective. In case of linkages with line departments, Sujala program has better arrangements of linking all relevant line departments with watershed CBOs. In case of Hariyali, the line department which is the PIA has strong linkages with watershed stakeholders while linkages with other line departments depend on local dynamics. In APRLP and IGWDP, linkages with line departments are not efficient.

- Post-project sustainability – sustainability of CBOs: Among all the watershed CBOs, SHGs show the potential to be sustainable in all the programs. WIA is more sustainable in APRLP and Hariyali programs. FGs are sustainable in Sujala program but not in APRLP and IGWDP watersheds. LGs are more sustainable in IGWDP than APRLP watersheds. In other programs there are no LGs.

- Post-project sustainability – participation of different sections of watershed community in program management: Based on this criterion, Sujala program gets higher ranking as different sections of watershed community are involved in program management from the beginning. The Hariyali watersheds are ranking least; while APRLP and IGWDP watersheds fall between these two extremes with the latter ranked higher than the former.

- Robust institutional mechanisms are pillars of strength for eliciting community participation and success of a watershed program. Thus institution building and capacity development shall draw sufficient focus in watershed program.

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Annexure – 1: Information collection framework

For WIA/PIA/WDT:

I. Stakeholder analysis:

1. Who are the stakeholders in the watershed – project/post-project
2. SH important influence matrix – project/post-project
3. SH role matrix – project/post-project
4. How do they interact with other stakeholders – SH linkage matrix – project/post-project

II. Capacity building needs assessment:

1. What are their current responsibilities pertaining to watershed development?
2. Which of those responsibilities (project/post-project) they are able to handle themselves and for which responsibilities they need support? A ten point scale to measure the capacities.
3. What are the capacity building activities that were organized till now?
4. Do they think the capacity building activities organized till now are sufficient for them to function independently? Their opinion.

III. Performance of the roles:

1. What is their involvement at various stages of the program – planning, implementation and monitoring (Rank with High/Moderate/Low)
2. Have they at any time suggested modifications to the action plan? What are they? What happened?
3. Have they incorporated any women specific/non-farm issue in the action plan? What are they?
4. Have they at any time rejected payments due to poor quality of watershed structures? When and what?
5. What are those watershed development works which they can do on their own?
6. Which are those watershed development works where they need support of others?
7. What are the three major problems they solved in the watershed program? When and how?
8. What are the three major problems they couldn't solve in the watershed program?
9. How are they planning to continue watershed development in the post-project phase, in the absence of WDT and other stakeholders?
10. What is their capacity to independently handle watershed development on a ten point scale?
11. What needs to be done to make them capable of independently handling watershed development?
12. Who are the other key stakeholders who are not involved at the moment in watershed development? How should they be involved?

For women members of the WIA/SHG members/LG members/Laborers:

I. Stakeholder analysis:

1. How do they interact with other stakeholders – SH linkage matrix – project/post-project

II. Capacity building needs assessment:

1. What are their current responsibilities pertaining to watershed development?
2. Which of those responsibilities (project/post-project) they are able to handle themselves and for which responsibilities they need support? A ten point scale to measure the capacities.

3. What are the capacity building activities that were organized till now?
4. Do they think the capacity building activities organized till now are sufficient for them to function independently? Their opinion.

III. Performance of the roles:

1. What is their involvement at various stages of the program – planning, implementation and monitoring (Rank with High/Moderate/Low)
2. Have they at any time suggested modifications to the action plan? What are they? What happened?
3. Have they incorporated any women specific/non-farm issue in the action plan? What are they?
4. Who are the other key stakeholders who are not involved at the moment in watershed development? How should they be involved?

Assessing the impact – gender issues:

1. Fodder security

    a. Sources of fodder (%) – whether project interventions have impacted

2. Fuel wood

    a. Sources of fuel wood (%) – project/pre-project
    b. Time needed to procure fuel wood/per week

3. Drinking water

    a. Time required to fetch water/per day – any changes due to project

4. Food security

    a. Sources of food (%) – any changes due to the project
    b. Any changes in food consumption pattern – green leafy vegs, pulse consumption, etc.
    c. Kitchen garden – who has – whether through WS activities

5. Which activities of watershed development have been beneficial for them?

6. Whether they have started any allied activities as part of the program? What are they?

Assessing the impact – labor related issues (Only with LG members/laborers:

1. Contribution from various sources to the household income – pie diagram (or) percentage
2. Number of labor days per year – project Vs post-project
3. Migration pattern – project Vs pre-project – no of days/season/family, etc.
4. How would the situation change in the post-project phase with regards to migration
5. Who engages them for watershed work and who pays them for the work done? The process involved.
6. Have they ever faced any problems with regards to watershed works? How did they solve those problems?

For land owner groups (AG/UG)/farmers:

I. Stakeholder analysis:

1. How do they interact with other stakeholders – SH linkage matrix – project/post-project

II. Capacity building needs assessment:

1. What are their current responsibilities pertaining to watershed development?
2. Which of those responsibilities (project/post-project) they are able to handle themselves and for which responsibilities they need support? A ten point scale to measure the capacities.
3. What are the capacity building activities that were organized till now?
4. Do they think the capacity building activities organized till now are sufficient for them to function independently? Their opinion.

III. Performance of the roles:

1. What is their involvement at various stages of the program – planning, implementation and monitoring (Rank with High/Moderate/Low)
2. Have they at any time suggested modifications to the action plan? What are they? What happened?
3. Have they incorporated any women specific/non-farm issue in the action plan? What are they?
4. Who are the other key stakeholders who are not involved at the moment in watershed development? How should they be involved?

IV. Assessing the impact – landowner groups

1. Who took decision on what kind of watershed works need to be taken up
2. Maintenance of structures – how it has been done in the past one year – situation in the post-project phase
3. What is the cropping pattern followed – any changes during the project phase
   a. What are the crops grown (in what % of their farm – *kharif/rabi*)
   b. Are there any changes since past three years – either crops/varieties/practices
   c. Increase in productivity – if any – what percent
4. Have they experienced any conflicts in watershed works? How did they solve them?
5. What are the benefits they had due to the watershed project?
6. What are the sources of family income (% contribution from different sources)? What is the influence of watershed program?

For field staff supporting the program (WA/FG/Animators/PW):

I. Stakeholder analysis:

1. How do they interact with other stakeholders – SH linkage matrix – project/post-project

II. Capacity building needs assessment:

1. What are their current responsibilities pertaining to watershed development?
2. Which of those responsibilities (project/post-project) they are able to handle themselves and for which responsibilities they need support? A ten point scale to measure the capacities.
3. What are the capacity building activities that were organized till now?
4. Do they think the capacity building activities organized till now are sufficient for them to function independently? Their opinion.

	WIA	PIA	GP	SHG	FG	SHG apex body	Field staff	WDT	LINE DEPT
Identification of works									
Decision on works									
Action plan preparation									
Execution of works									
Checking the quality of works									
Payments									
Maintenance of structures in private lands									
Maintenance of structures in common lands									
Knowledge inputs on watershed structures									
Knowledge inputs on agriculture									
Knowledge inputs on livestock									
Knowledge inputs on social organization									
Knowledge inputs on gender									
Resolving conflicts									
Creating and sustaining linkages with agencies									
Monitoring the functioning of CBOs and field staff									
Stakeholder role matrix: // = fully involved; / = partially involved; - = not involved; Performance measured as = Good, Moderate and Low									

Name of Stakeholder	Responsibilities (project phase)	Responsibilities (post-project phase)

Linkage mechanism of one stakeholder with other stakeholders:

Name of the stakeholder	Linkage mechanism[1] and activities	Performance[2]	Changes in the post project phase
	Operational:		
	Structural:		
	Operational:		
	Structural:		
	Operational:		
	Structural:		
	Operational:		
	Structural:		
	Operational:		
	Structural:		
[1] Operational = Joint activities; Structural = Representation [2] Rating should be with Good (G), Moderate (M) and Poor (P). Reason should also be mentioned wherever necessary			

Stakeholder importance/influence analysis: During project and post-project periods

List of key stakeholders:	

Low importance   High importance

About ICRISAT

ICRISAT
Science with a human face

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a nonprofit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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