

WORKING PAPER 59

Multi-Level Participatory Consultative Approach for Institutional Change in River Basins

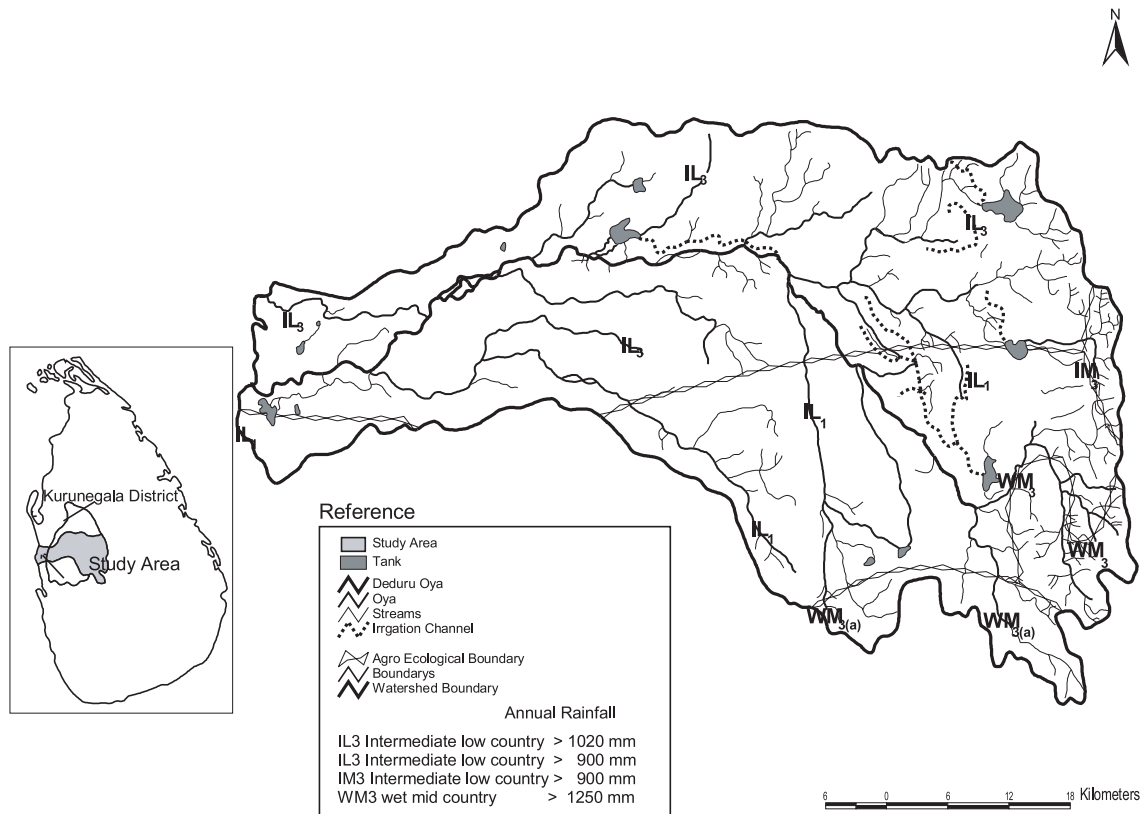
Lessons from the Deduru Oya
Case Study in Sri Lanka

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1. Introduction

This paper discusses methodologies applied in the Deduru Oya river basin, the basin selected from Sri Lanka for the regional study on the development of effective water management institutions. The study was funded by the Asian Development Bank (ADB) to assist the five countries, Indonesia, the Philippines, Nepal, China and Sri Lanka to work out methodologies and develop effective water management institutions (ADB-RETA 5812). The Deduru Oya basin in which the empirical studies were carried out is located in the northwestern province of Sri Lanka (Figure 1).

Figure 1. Agro-ecological regions of Deduru Oya basin.



The methodology discussed in this paper includes mainly the approaches adopted for stakeholder consultation and other data collection methods for identifying water resources management problems in the basin.

The findings of the various special studies carried out are not included in this paper and instead, the relevance of information generated through such studies to hold useful participatory stakeholder consultations are highlighted. The information generated through special studies became useful, facilitating inputs for the successful implementation of stakeholder consultation activities. These special studies include:

- The Deduru Oya river basin profile.
- Socio-economic Conditions and the issues in the Deduru Oya river basin.

- Water resources management institutions in the Deduru Oya river basin.
- Water accounting and agricultural performance in the Deduru Oya river basin.

2. Methodology adopted for stakeholder consultation

The Stakeholder consultation is one important method for identifying the issues related to the water resource use and management by different users in a river basin. Although the Deduru Oya River basin is not a very large one, water resource utilization activities in the basin are diverse. They include, irrigation (major, medium, small and minor tank systems, anicut systems and lift irrigation from the river and its tributaries), agricultural farms, both large and small, livestock keeping, domestic water supplies, small scale industries, fisheries and forestry. These different activities create different kinds of problems and raise different issues, depending on the nature of the resource users. The reconnaissance visits of the researchers to the Deduru Oya river basin made during the initial stage of the study provided some understanding on the nature of the dynamism of the issues related to each water use activity. Therefore, it appeared necessary to implement a program for the proper consultation of different stakeholders to have a deeper understanding on the problems and issues of their concern. The best suited method for such consultation, as understood by the rural development practitioners is Focus Group Discussions (FGDs), which are one out of the large number of methods applied in Participatory Rural Appraisals (PRAs). The rationale for consulting them is summarized in Table 1.

Table 1. Rationale and significance of stakeholder consultation.

Purpose	Significance
To tap local knowledge.	To identify the long term practices and norms of local people on their resource management problems. This information forms a basis for proposing appropriate institutional changes for water resources management in the basin.
To identify negative and positive impacts of water utilization by different users.	Proper understanding of negative and positive impacts of water use practices would be useful to develop new roles, responsibilities and functions for water management institutions and organizations.
To obtain different views.	Understanding of the views of different water users would be important for working out institutional strategies to address the problems that hinder development of long term sustainable solutions.

As explained above, the stakeholder consultation required proper planning and selection of a representative sample etc. for proper consultation. The following characteristics of the water users were seriously considered in selecting a representative sample of participants for the consultation sessions.

- The stakeholders' different purposes of water use and their coverage of different geographical locations spread over the whole basin.

- The social and economic heterogeneity of stakeholders.
- The source of water of each stakeholder. For example, ground water, water directly from the river, irrigation systems, etc.

2.1 Methodological options available for stakeholder consultation

Due to time and resource constraints associated with this study, it was required to select appropriate methods for identifying water resource management and institutional problems in the basin. With the understanding that a single method is inadequate for this purpose, the researchers had to use a number of methods for gaining a comprehensive understanding of the problems. In addition, the specific nature of the activities at different phases of the study demanded different methodological approaches. For example, Phase I which involved problem identification needed methods different from those in Phase II which aimed at strategy formulation and action initiation to solve the existing problems through improved institutions. The methods and strategies required in Phase II were entirely different from those used in Phase I. Also, the phase II of the project needed active participation of different stakeholders, and for obtaining their commitment, different methods and strategies had to be deployed.

3. Methods applied in problem identification phase (Phase 1)

Methodologies for stakeholder consultation needed to be those that promote their active participation. It is well accepted that unless the stakeholders are involved in the whole process of a development project, including its problem identification phase, they are less likely to participate actively in implementation activities (Chambers, 1994 and Ford et al. 1992). When their involvement is sought in the implementation stage without getting their active participation in the problem identification stage, they tend to feel that they are forced to accept and implement interventions that they are not aware of or do not themselves feel required. (Somaratne, 1998).

The methods adopted in the problem diagnosing phase have a long-term impact on implementation of activities during a project implementation period and beyond. The alternative methods used to select sample units to represent the whole basin, the options available for consultation, the methods adopted in this study, and reasons for adopting them alone are explained in Table 2. Annex 1 provides more details on methodological options considered and those that were selected. Table 3 includes the sample geographical units selected for consultation using different data collection methods.

The description given in Table 3 shows that participatory methodologies were adopted during the problem identification phase of the study to make different stakeholders aware of the gravity of the problems that their water resources are currently facing. The main objective of this approach was to get their commitment for future interventions to address such problems. The other data collection methods such as questionnaire surveys were used to collect quantitative data to have a better understanding on the magnitude of the problems and issues that emerged at the participatory consultative sessions.

Table 2. Survey and stakeholder consultation – methodological choices.

Methods	Options considered	Selected
Spatial coverage of the basin	Full coverage	No
	Random samples	No
	Stratified samples	Yes
Sampling unit	Province	No
	District	No
	DS division	Yes
	GN division	No
Stakeholder consultation	Formal interviews with actors	Yes
	Questionnaire	Yes
	PRA/FGD	Yes

Table 3. Sample location of data collection program.

DS divisions	Selected for data collection	Interviews	PRA
Ridigama	Yes	Yes	No
Ibbagamuwa	Yes	Yes	Yes
Ganewatte	Yes	Yes	Yes
Wariyapola	Yes	Yes	Yes
Nikaweratiya	Yes	Yes	No
Kobeigane	Yes	Yes	Yes
Bingiriya	Yes	Yes	Yes
Arachchikattuwa	Yes	Yes	No
Chilaw	Yes	Yes	Yes

3.1 Description of the methodology

The central focus of the methodology was stakeholder consultation. However, the other data collection activities carried out in the basin prior to stakeholder consultation facilitated the process of stakeholder consultation. The data and information collected, and the understanding developed through the application of supplementary methods, helped the facilitators (the field researchers) to know the issues to be discussed at the stakeholder consultation sessions. This supplementary information collected included:

- Quantitative information for basin level water balance studies, aimed at calculating water quantities being used for economic activities and out flows (water not used for any purpose) from the river to the sea etc.
- Information for assessing the performance of different types of irrigation systems in the basin.

- Socio-economic information of the basin.
- Information on the performance of the existing institutions (organizations, various legal enactments, and other community practices in water resources utilization and management).

3.2 Components of stakeholder consultation methodology

The stakeholder consultation methodology involves three different components:

- Meetings (formal interviews) with key actors of the water resources development and management agencies functioning in the basin area.
- FGDs with representatives of water resources development and management agencies. (In most cases, the same officials whom the researcher met individually for interviews were brought together for joint discussions.)
- FGDs/PRA with representatives of communities (beneficiaries) who utilize water and other natural resources in the basin for their livelihood.

3.3 Field application process

3.3.1 Approach to cover the spatial variance in the river basin

Two significant spatial differences in the river basin were identified through the understanding developed in reconnaissance visits, and also through the secondary data collected from the agencies. It was understood that these differences should be captured through field studies to draw conclusions relevant and applicable to the basin as a whole, hence it was required to select sample geographical units that represent the significant differences in the basin. These differences identified in the basin included:

- Agro ecological differences. (The basin falls within two climatic zones; intermediate and dry. The annual rainfall in the intermediate zone is about 1700 mm and in the dry zone, it is about 1300 mm. The water availability for cultivation, and the land use pattern, and the performance of agriculture are heavily dependent on the climatic conditions).
- Differences in water resources development and management (These factors include, irrigation development, land use pattern, use and utilization of resources such as sand in the river, clay on river banks and the agricultural development and management in the coastal areas of the basin etc.).

3.3.2 Basis for selecting sample geographical units for field studies

There are a number of different administrative units such as the province, the district, the Divisional Secretary division (DS), and the Grama Niladhari division as the unit of data collection for the study. It was required to evaluate the appropriateness of these units for data collection as the

secondary data and information are available at the offices of these administrative units. DS divisions were found to be appropriate mainly because they are manageable units representing different agro-ecological zones in the basin, and there are offices of different line agencies at DS level that maintain data and information on resource use and utilization, population, and institutions related to water and other natural resources. On the other hand Divisional Secretary is the officer who coordinates land and water resources development and management activities in the DS division. On this basis it was hypothesized that the Divisional Secretary with delegated power and authority over land and other natural resources management would be the ideal person to act as the coordinator for improving the institutions for better management of water resources in the basin. The other administrative units were not considered for selection as units of data collection for the following reasons:

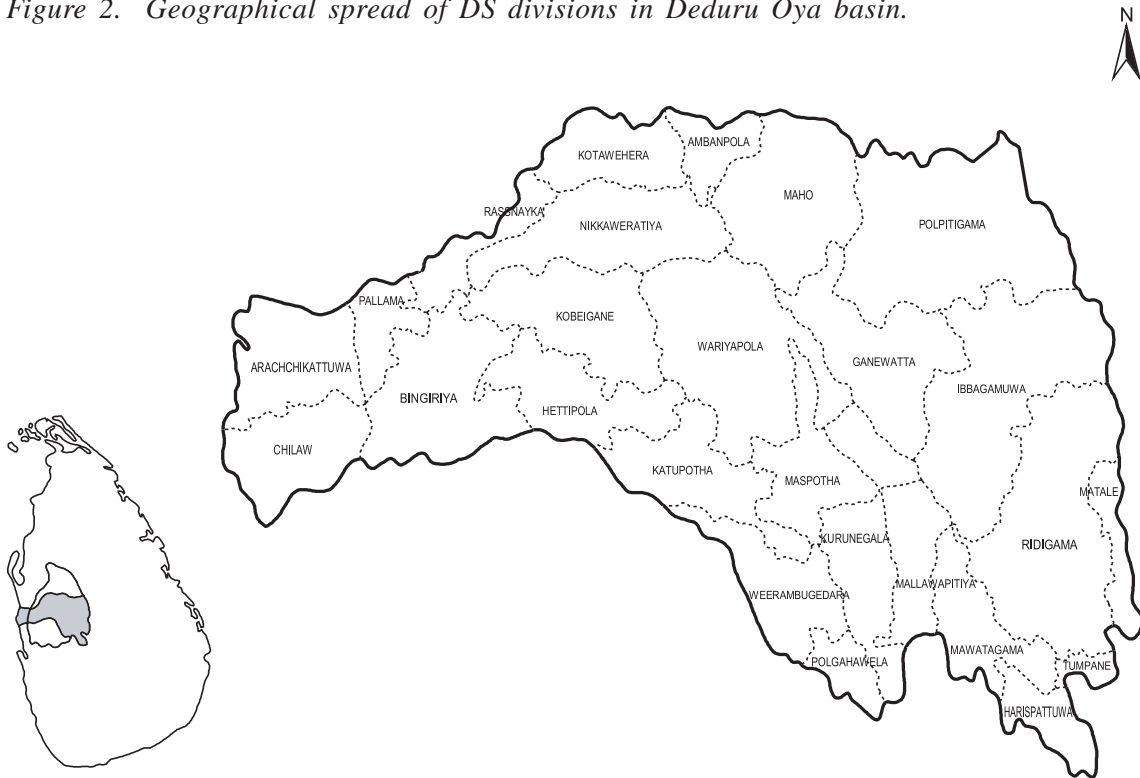
- **Provincial Council** – This is an administrative body, which functions independently of the central government. The Deduru Oya basin falls within the provincial council of the North Western Province. It is a larger administrative unit covering a larger geographical area. If it were selected as the unit of data collection, spatial differences of the basin would not be reflected in the data.
- **District** – the Deduru Oya basin comes under two districts, Kurunagala and Puttalam. Since these are also relatively large geographical areas, spatial differences of the basin can not be captured by selecting the district as the unit of data collection.
- **Grama Niladhari divisions** – These are the grass roots level administrative units. All the data required for the study are not available in these offices. Since there are a large number of Grama Niladhari divisions, it is not possible to collect data and information from them due to time and resource constraints.

The geographical distribution of DS divisions in the basin is shown in Figure 2. As indicated in Figure 2, there are twenty-four DS divisions falling within the Deduru Oya division. The total land area of some divisions falls within the basin boundaries while in some DS divisions, it only partly falls within them.

In selecting sample DS divisions for the study, the two types of differences discussed above under the field application process were taken in to consideration. The number of sample DS divisions selected for collecting socio-economic data and interviews with key officials of agencies, and the basis for such selection are shown in Table 4.

After the completion of the socio-economic data collection and the interviews, it was understood that three DS divisions from the total sample DS divisions selected initially could be excluded when conducting FGDs as their physical and socio-economic characteristics were similar to those in the adjacent divisions in which socio-economic data were collected. Therefore, out of the 9-DS divisions in Table 4, only the 6 divisions Ibbagamuwa, Ganewatte, Wariyapola, Kobeigane, Bingiriya and Chilaw were selected for FGDs. Please see Annex 2 for details.

Figure 2. Geographical spread of DS divisions in Deduru Oya basin.



3.4 *Process followed for consultation of agency officials (process followed in formal interviews with the main actors of agencies).*

3.4.1 *Planning process*

The objectives of holding formal interviews with key individual agency officials were as follows:

- Identification of water resource based development and management activities implemented by the key agencies (collecting data available in their respective agencies).
- Identification of the main problems with regard to the availability and management of water resources for their main income earning activity/activities in the basin.
- Identification of their institutional problems and possible solutions to such problems.
- Identification of possible future threats they may have to face in developing and managing water resources in the basin.
- Finally, documenting their suggestions to improve the development and management of water resources for catering to their needs and activities being carried out by them.

The agencies consulted and the key actors interviewed are shown in Table 5.

Table 4. Characteristics of representative samples of DS divisions in Deduru Oya basin.

Group	% in the basin	Location			Climate			Agriculture				Irrigation			Major population				
		H	M	T	W	I	D	Pd	Ex	Co	Rb	An	St	Maj	Med	Min	Rural	Town	Urban
Ridigama	100	*				*		*	*	*	*	*	*	*	*	*	*		
Ibbagamuwa	100	*				*		*	*	*	*	*	*	*	*	*	*		
Ganewatte	100	*				*		*	*	*	*	*	*	*	*	*	*		
Wariyapola	100					*		*	*	*	*	*	*	*	*	*	*		
Nikaweratiya	75		*				*	*	*	*	*	*	*	*	*	*	*		
Kobeigane	100		*				*	*	*	*	*	*	*	*	*	*	*		
Bingiriya	80			*			*	*	*	*	*	*	*	*	*	*	*		
Arachchikattuwa	50			*			*	*	*	*	*	*	*	*	*	*	*		
Chilaw	50			*			*	*	*	*	*	*	*	*	*	*	*		

Key to the table

H = head, M = middle, T = tail, Pd = paddy, Ex = export crops, Co = coconut, Rb = rubber, W = wet, I = intermediary, D = dry, An = anicuts, St = streams, maj = major, Med = medium, Min = minor

Table 5. Agencies and key officials interviewed in sample D.S. divisions.

Name of the agency	Key actors interviewed	The main functions of the agencies
Divisional Secretary's office	Divisional Secretaries and the Assistant Directors (planning)	Coordination of activities related to land and water resources development in the DS division. The Divisional Secretary acts as the chairman of the two coordination bodies at DS level, the divisional agricultural committee and the divisional development committee. He also has authority to enforce rules, regulations and acts in land and water resources management in his jurisdiction, the DS division.
Department of Agrarian Services (DAS)	Divisional Officers (DOs), 1-2 DAS centers falling under each DS division.	DAS is responsible for small tank irrigation systems, for mobilizing resource users in them, and registering the water users' associations in irrigation systems. Especially, the rehabilitation of small tanks is handled by the DAS when the government provides funds for rehabilitation and improvement activities.
Department of Agriculture (DOA)	Agricultural Instructors-AIs (1-2 AIs from each DS division).	DOA is responsible for agricultural extension, technology transfer etc. in both irrigation and rain-fed farming systems.
Coconut cultivation Board (CCB)	Seven officials in charge of coconut development zones in the basin.	CCB is responsible for promoting coconut cultivation by providing extension services, and inputs such as seedlings to the farmers in the area. Coconut is the main perennial crop in the basin and is a significant source of income for the farmers in the basin.
Irrigation Department (ID)	The Deputy Directors (Kurunagala and Puttalam districts), Irrigation Engineers in charge of major and medium tank and anicut systems in the basin.	The Irrigation Department is responsible for managing medium and major irrigation schemes in the basin. The main water use in the basin is irrigated agriculture.
Irrigation Management Division of the Ministry of Irrigation and Power.	The Project Managers of major irrigation systems within the basin.	Irrigation Management Division is responsible for organizing farmers in major irrigation schemes for joint management.
Forest Department	District Forest Officer (DFO)	The agency responsible for the development and management of forest resources in the district.
National Water Supply and Drainage Board	Manager (NWS&DB)	The agency in charge of acquisition and distribution of water for domestic and industrial purposes.

3.4.2 The implementation process

Initially, the agency officers were interviewed individually to obtain data relevant to the resource management activities being implemented by them. Each agency officer interviewed, spent 1-2 days of his time for these interviews held from time to time. In this process IWMI researchers could exchange views and ideas with them regarding the proposed project for improving the institutions involved in water resources development and management in the basin. Involvement of the officers in this way in the process of data collection helped obtain their participation in the project activities in the later stages. It was expected that they would take initiative to introduce institutional and other management changes required with a better understanding on resource management problems gained through the participation in data collection.

3.5 Process followed for consultation of agency officials in focus group discussions

3.5.1 Planning process

The objectives of meeting agency officials in groups are:

- To create a joint forum for officials of different agencies to exchange views and opinions on similar issues.
- To identify the similarities and differences of the views of different agencies on problems and issues in the basin.
- To identify the degree of significance of different issues /problems in the basin from the agencies' perspectives.
- To identify a set of solutions proposed by the key agency officials jointly.

3.5.2 The implementation process

Consultation of agency officers through FGDs was a joint activity of the organizing agency and the IWMI field research team. The Divisional Secretaries of the 6-DS divisions organized the FGDs using their resources while IWMI field researchers facilitated and documented the discussions.

3.6 Consultation process of resource users (water and land resource users)

3.6.1 Objectives of consultation of resource users

The main objective of this consultation was to document the experience of the water users of different sectors in water resource use and utilization, and associated problems. The group discussions focused on the following:

- The water quality and quantity related problems of water resource users and their impact on their livelihood activities.

- The nature of competition /conflicts among different water use sectors.
- Institutional support for conflict resolving among different water users (between and among different water use sectors).
- Suggestions for addressing unresolved problems.
- To identify similarities and differences of views between agency personnel and resource users.

The agency that collaborated, organizing FGDs with the resource users was the Department of Agrarian Services. The Divisional Officers of the Agrarian Services Department organized these meetings through their field level officers. IWMI researchers facilitated and documented these meetings. Eleven FGD sessions were conducted in 6-DS divisions (annex 2) where similar group discussions were held with agency personnel.

4. Participatory methodology adopted for initiation of institutional change (Phase II)

The phase II of the research project was designed to initiate institutional changes to fill the gaps in the existing institutions. Parallel to the research project implemented by IWMI another ADB funded project, Water Resources Secretariat (WRS) was initiated by the government of Sri Lanka to introduce institutional changes in water resources management in the country. ADB and the government expected to implement an action program in the Deduru Oya basin jointly with the project implemented by IWMI and test the proposed institutional innovations for integrated water resources management on pilot basis. Under certain unavoidable circumstances WRS could not make anticipated progress in its activity implementation and therefore, it failed to implement a joint program with IWMI. But IWMI made every effort to keep WRS staff informed of the activities implemented by IWMI in the Deduru Oya basin. The participation of WRS staff in activities (workshops, seminars and similar programs) were encouraged. For the IWMI, the collaboration with WRS was most welcome, mainly because WRS had been set up to introduce institutional changes (policy, legal and other) for integrated water resources management. In the face of the failure to implement a collaborative program in the basin with the WRS, IWMI researchers were compelled to initiate some actions favoring the process of institutional changes in the Deduru Oya for the very reason that it was the pilot river basin chosen by WRS to test all the possible innovations for institutional change.

The IWMI implemented activities with the collaboration of stakeholders at several hierarchical levels such as provincial, district, DS and ASC in the basin. These activities included the following:

4.1 Awareness raising and commitment building at provincial level

A provincial level committee comprising representatives from line agencies in the North Western Province was formed. This committee also included representatives from NGOs, private sector organizations and WRS involved in water related development activities in the basin. The findings of the studies during Phase I were communicated to this committee. The WRS expected this committee at provincial level to be developed into a river basin council to implement IWRM in the

river basins in the province. Since the committee comprises provincial level officials of organizations with authority and powers, it is the most suited organization to facilitate the process of institutional change for IWRM. A draft action program developed through the participatory consultation process was presented to the committee members for their comments and approval. Based on their comments, the draft action plan was amended. The commitment of the officers was obtained to implement the action plan which included short term, medium term and long term actions to establish appropriate institutional changes for IWRM. The committee also requested IWMI to carry out three special studies to create supplementary information for implementing the action plan. These three studies included:

- The preparation of an inventory of informal water users (farmers illegally tapping water from the river and its tributaries using water pumps). This information was not available with the agencies responsible for water resources management. As this sector operating informally is ever increasing, the agencies wanted to have reliable information on them.
- A study of the implication of legal provisions of the provincial administration system for the establishment of river basin level organizations under its jurisdiction.

These studies were conducted by IWMI and the findings were submitted to the committee.

4.1.1 Awareness creation and commitment building at district level

The district level is a very important administrative level in the country. The programs implemented by the Central Government in the country are coordinated by the District Secretary at district level. The activities related to agricultural plan implementation in the district is coordinated and monitored by a committee known as the District Agricultural Committee (DAC). This committee had been proposed to be strengthened to plan, implement and monitor IWRM activities at district level in the action plan prepared by IWMI. Therefore IWMI researchers participated at two DAC meetings (One in the Kurunagala and the other in the Puttalam districts, the two districts falling within the Deduru Oya basin), and presented the findings of the study and the action plan prepared for implementation. The committee members were of the view that institutional reforms were required for implementing IWRM, and the mandate of DAC could be expanded to undertake IWRM activities at district level.

4.1.2 Awareness creation and commitment building among the stakeholders at DS level

Based on the action plan discussed and refined at the provincial committee level, participatory planning sessions were held at 6 representative sample DS divisions of the basin. The DS level agricultural committees were used as the forum for participatory planning, mainly because it was expected to strengthen these committees to function as the sub committees of the basin level council. These committees presided over by the Divisional Secretary and represented by the middle level officer of agencies working in the DS division are responsible for the planning and monitoring of agricultural activities in the division. The participatory planning sessions were organized at the DS level committees to explore the possibilities of initiating some action included in the action plan.

These sessions were conducted in the 6-DS divisions where problem identification sessions were held during phase 1 of this study. Therefore, the participants of the action planning sessions were well aware of the project purpose, objectives and activities. They agreed to include some components of the action plan in the activities of the agencies participating at the committee for testing through their committee system. At the end of the sessions in 6-DS divisions the participants worked out a tentative program for testing through divisional agricultural committees. Most of these activities agreed upon would contribute to IWRM.

4.1.3 Awareness creation and commitment building at the grass roots level

The action plan document critically reviewed and improved at the divisional level was once again used to consult the grass roots level stakeholder agencies. ASCs were used as the unit for this intervention. ASC consists of all the government agencies involved in agricultural development at the grass roots level and CBOs, mainly the farmer organizations. The main functions of ASCs are to plan and monitor the agriculture related activities in the areas coming under the ASC jurisdiction. Each DS division has 2-3 ASC centers in general. The members of the ASC committees at sample DS divisions agreed to include some activities proposed in the plan in their routine planning activities. They pointed out that the conservation of tank eco-systems and environmental conservations need to be included as one major task of the committee.

4.2 Actions initiated during three different interventions

As mentioned at the beginning of section 4, IWMI researchers were constrained from action initiation due to delays in implementing the activities planned by the WRS in the basin. Therefore, the researchers concentrated only on achieving the following three objectives in the action initiation phase.

- Raising the level of awareness among key stakeholders on the deficiencies in the existing institutions for water resources management and obtaining their long term commitment for the implementation of institutional changes for integrated water resources management in a basin context.
- Motivating the responsible stakeholder agencies to initiate some actions favoring the proposed institutional changes until the new policy changes are approved and ready for testing in the basin.
- Creating favorable organizational environment at all the hierarchical levels in the basin for WRS to test its new institutional innovations.

The researchers observed some positive changes for the realization of these objectives as shown in Table 6.

Table 6. Objectives of consultation and positive trends.

Objective	Positive trends
Creation of awareness.	The members of the committees at, Provincial, District, DS and ASC levels agreed that there are institutional gaps hindering proper management of water resources in the basin. They also accepted the importance and relevance of IWRM approaches.
Initiating some possible activities among agencies.	Provincial level authorities requested the heads of line agencies to get actively involved in the action program and accepted the responsibility to act as an interim river basin committee. The divisional level agriculture committee accepted to change their planning and monitoring agenda to include some activities related to IWRM. Similarly, agrarian service level committees too understood the need of changing the planning and monitoring system of the resource use and management in the areas coming under each center.
Creating favorable organizational environment.	The response to the need for IWRM became more positive at the end of the phase 2 of the study. During phase 1, the officials of agencies kept on questioning the needs for such changes. Now, there is a considerable number of leaders in key agencies who are in favor of institutional changes.

5. Conclusion and recommendations

Stakeholder consultation is required for a comprehensive understanding of the water resource related issues and problems in a river basin. It provides an opportunity for the researchers to interact closely with the water users as well as the agencies involved in the management of water resources, collect data and information with their participation, do joint analysis, and prepare action plans. This type of strategy would help reflect the stakeholder perspective in action plans and programs for water resource-related problem solving, and thereby facilitate the procurement of the long-term commitment of the stakeholders to implement action plans prepared with their assistance. Stakeholder consultation was used in a quite strong and meaningful way to achieve this objective in the study carried out in the Deduru Oya basin. It should be stated however that utmost care should be taken to support the stakeholder consultation through appropriate sampling methods and other tools and techniques when the study covers a larger geographical area like a river basin. Otherwise, it will not be cost effective due to the considerable financial and other resources involved in consultation. The uniqueness of the Deduru Oya study is the selection of the DS division (an appropriate and manageable administrative unit with favorable institutional arrangements and agencies managing basic data and information on water resource use and utilization) as the unit of data collection and consultation. Several DS divisions representing the physical, socio-economic, and institutional diversities in the basin were selected for the stakeholder consultation to avoid financial and other resource constraints involved in studying the whole basin.

The consultation process adopted in this study involved four steps. First, key officials of the government agencies were interviewed to understand the problems and issues related to water resources development, management and service delivery. Second, the group discussion was held with the same agencies to provide them a forum to discuss the common problems and issues related to water resources management. Third, resource users were consulted in group discussions to get

their views on their problems as the end users of water resources in the basin. Finally, group discussions were held jointly with the farmer representatives and agency officials. This provided opportunity to compare and contrast the views of agencies with those of resource users. A questionnaire survey was also conducted in resource user communities to validate the issues that emerged at focus group discussions. The data obtained through the questionnaire could be used to quantify issues and problems raised by a limited number of farmer representatives at the focus group discussions. The information generated through the specific studies such as the water accounting, institutional analyses and the socio-economic study provided better understanding for the IWMI facilitators to conduct more meaningful stakeholder consultation sessions.

The main advantage of a consultation process of this nature is the opportunity that it creates for the facilitators (change agents) to establish rapport with different stakeholders in the basin. Just like in the technique called participant observation, it builds intimacy and trust between the anthropological field worker and the community members under the study; participatory stakeholder meetings become the forums for the facilitator to work closely with the stakeholders and express their views and ideas in a natural setting. The intimacy and trust built up at the diagnostic phase creates a favorable environment for the facilitators and development interventionists to work closely and collaboratively with the stakeholders during implementation stages as well. The discussions and joint analysis at consultation meetings on water resources management and associated institutional problems build up a holistic and deeper understanding in the participants, and broaden their vision and outlook and lead them to the initiation of activities for resource related problem solving and to support projects and programs for institutional reforms for efficient and sustainable use of water resources. The merits of the approach could be observed in the Deduru Oya basin from the interest and commitment shown by the participants at stakeholder meetings and in implementing some IWRM activities (in spite of the delay by WRS to implement the proposed project) in the basin during the action phase of the project. Finally, the methods tested in the Deduru Oya River basin study are cost effective in terms of time and financial resources required for a comprehensive program of stakeholder consultation.

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Annexes

Annex 1. Methodological options available and the methodologies adopted.

Activity	Methods available	Why not adopted	Methods adopted	Reasons for adoption
Geographical coverage of the basin.	Cover 100% of the area within the river basin or select a sample of geographical units that represents the common characteristics of the basin.	High cost of covering the entire area. Alternative methods can be worked out to identify the critical and significant problems without covering the entire area.	Selecting representative sample geographical units for field studies.	Covering representative sample is cost effective, and the same outputs can be achieved without covering the entire area.
Consultation of water resource development and management institutions.	Interviews with agency officials, and questionnaire surveys with agencies working in the whole basin. Participatory Rural Appraisal sessions in selected sample geographical units.	Interviews with individual agency officials will not develop good rapport with them for long term interactions. Meeting with individual agencies will not provide opportunity for them to interact with fellow agency officials attached to other agencies operating in the same basin.	Interviews with agency officials to collect some quantitative data and Participatory Rural Appraisal sessions with the participation of key agency officials in a given geographical location.	PRA sessions create opportunity for agency officials of different agencies to interact at one meeting to exchange views on the same issues.
Consultation of water resource users.	Questionnaire survey with a larger number of individual householders in the basin or PRA sessions in a selected sample of geographical units with the participation of different categories of water users in the same session. Questionnaire survey with a limited number of resource users to validate the magnitude of the issues that emerged from the PRA sessions.	Questionnaire survey with a larger number of householders is not cost effective. On the other hand different water users would not have chances to interact with fellow resource users to exchange views on the same issues.	PRA sessions in a selected sample location with the participation of multiple water users. Focus questionnaire survey with a limited number of resource users from one category which comprises the majority (the most significant group) of the population in the basin to clarify some of the issues that emerged at the PRA sessions, to have better ideas on the magnitude of the problems/issues.	Time and cost considerations and also to create opportunity for different resource users to interact with each other in the same forum.

Annex 2. Characteristics of the sample D.S. divisions.

Name of sample division	Its location in the basin (H, M or T)	Significant common characteristics observed in the sample divisions (justification of the samples for their representation of the total basin).	Names of other divisions represented by the sample.
Ibbagamuwa	H	Intermediary zone, major, medium and minor irrigation systems, coconut and rubber cultivation, rural area, 100% of the area within the basin.	Mallawapiiya, Polpitiyagama Weerambagedara, Kurunegala
Ganewatte	H	Intermediary zone, major, medium and minor irrigation systems, coconut cultivation, rural area, 100% of the area within the basin.	Maspotha, Polpitiyagama
Wariyapola	M	Intermediary zone, minor irrigation systems, minor export crops, coconut cultivation, rural area, 100% of the area within the basin.	Katupotha, Maho
Kobeigane	M	Dry zone, minor irrigation systems, coconut cultivation, rural area, 100% of the area within the basin.	Hettipola, Kotawehera, Nikaweratiya
Bingiriya	T	Dry zone, minor irrigation systems, coconut cultivation, rural area, 80% of the area within the basin.	Rasnayakapura, Pallama
Chilaw	T	Dry zone, minor irrigation systems, coconut cultivation, urban, semi-urban and rural area, coastal belt, 60% of the area within the basin.	Arachchikattuwa

H= head, M= Middle, T= Tail

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