Smallscale Irrigation Schemes, Amhara Region

Yelbie Aneley (ayelbie@yahoo.com)

Sustainable Water Harvesting and Institutional Strengthening for Amhara (SWHISA)

P. O. Box 526. Bahir Dar, Ethiopia

Abstract

Farmers' participation is commonly perceived as being necessary only in the project implementation phase where by the community is expected to merely contribute unskilled labor, locally available construction materials and some token cash. However, participation is an all-encompassing process that requires active involvements of beneficiaries in decision making in all project phases from inception to monitoring and evaluation in collaboration with other stakeholders. However, the performance of the existing irrigation schemes is below expectation mainly due to low participation of farmers in planning, design and construction process.

In view of the increased focus on operation and maintenance and Participatory Irrigation Management, Sustainable Water Harvesting and Institutional Strengthening in Amhara (SWHISA) expressed the need to develop a cohesive strategy to improve Participatory Irrigation Management aimed at improving the performance of SSIS in the Amhara region. An implementation guideline has been developed and distributed to wereda CPA and IADP. Based on the PIDM approach, the willingness of the water users has been checked during the awareness campaigns and sensitization workshops and formation of users' organization were some of the activities undertaken at the new irrigation schemes before the construction work started. This paper presents a step-by-step PIDM procedures and resulting outcomes based on four new small scale irrigation schemes as case studies in the Amhara region.

To develop a sense of ownership and responsibility for O&M among the users of irrigation schemes, it is required that the users are involved in all the stages of the development of an irrigation system. Especially during the design of the scheme, maximum users' participation is a prerequisite for successful scheme development, because the most important decisions are made during this stage. To enable farmers to participate effectively in the design of irrigation scheme, it is important to consider the elaboration of the design as a step-by-step process during which farmers' priorities and preferences are matched with technical and financial possibilities.

Key words: Participation, Participatory procedures Water users, SWHISA

Introduction

The concept of an irrigation system refers not only to the physical aspect, such as channels and control structures, but also to the management structure by which the physical system is planned, designed, constructed and operated. These two aspects are functionally interdependent and need to be understood as a whole. Managing an irrigation system is a much more complex and difficult problem than is commonly recognized. Part of the explanation for limited success lays in the inadequate recognition that delivery and allocation of water involves complicated social, organizational, legal and economic questions in addition to the undoubtedly important technical matters.

The most underrated and misunderstood dimension of irrigation development today is that of the farmer, who has to use the water supplied by the irrigation system. Much is known about the design and construction of dams and canals, crop water requirements and operational irrigation practices. The social and organizational aspects of irrigation, unfortunately, continue to be the Achilles heel of system development, improvement, and operation. Governments and donors are slowly realizing the high economic and socio-political costs that occur when farmers and users are only spectators in designing, organizing, and operating irrigation projects and programmes, which directly affect them and depend on their willing participation (Verheijen, 2010).

To avoid deterioration of irrigation infrastructure and decreasing productivity of irrigated agriculture due to deficient irrigation systems, governments and financing institutions are now aware that effective farmer participation in the development and management of irrigation systems is required. The main objective of this review paper is to understand application and importance of participatory approach towards the development and management of Small Scale Irrigation Systems (SSIS). The material for this paper consisted of the participatory irrigation development and management (PIDM) procedure prepared by Sustainable Water Harvesting and Institutional Strengthening for Amhara (SWHISA) and reviewing the field reports and observations during exercising the approach at the new SSIS under SWHISA support.

Definition and purposes of participation

Ui f!ufsn t!'qbsujdjqbujpo !jo!efwfmpqn fou!boe!'qbsujdjqbupsz!bqqspbdi ft!up!efwfmpqn fou! are now used widely so widely that they have almost lost their meaning. These terms were introduced to emphasize the importance of people having control over their own development. The emphasis on participatory approaches is based on the observation that well-being is closely linked to the capacity to act (Mathie and Samuel, 2006)

Gbsn fst !qbsujdjqbujpo! jt! dpn n pomz! qfsdfjwfe! bt! cfjoh! ofdfttbsz! pomz! jo! ui f! qspkfdu implementation phase where by the community is expected to merely contribute unskilled labor, locally available construction materials and some token cash. However, participation is an all-encompassing process that requires active involvements of beneficiaries in decision making in all project phases from inception to monitoring and evaluation in collaboration with other stakeholders (BDU, BOWRD and SWHISA, 2009).

There are basically seven ways that development organizations interpret and use the term participation ranging from passive participation, where people are involved merely by being told what is to happen to self mobilization, to active participation, where people take initiatives independently of external institutions (Box 1). However, if the objective is to achieve sustainable development, then nothing less than functional participation will suffice (Jerry et al, 1995).

Key factors for effective participation are (Verheijen, 2010).

a) bsujdjqbujpo!pg!boz!l joe!tufn t!gspn !qfpqmf t!efdjtjpot!up!efwpuf!b!qpsujpo!pg!ui fjs! time, thought and energy to deal with problems through some form of collective action;
b) Organization of the concerned people makes participation patterned and predictable enough to acquire some recognizable and productive structure;
c) Incentives give people motivation and make participation more sustainable; and
d) Leadership makes participation more coordinated and effective by providing direction, encouragement and discipline.

The main purposes of participation are to: a) enable people to define and choose their own objectives; b) enable people to define their own ways to achieve their own objectives; and c) enable people to have full control over the benefits from the activities undertaken by them in their own ways to achieve their own objectives.

Box 1: Typology of Participation (adapted from Pretty et al, 1995).

Greatest dependence on external agents

Passive: No feedback (the information shared belongs to the external agent only)

Participate in information giving: People answer the questions posed, but have no opportunity to influence decisions as information is not shared

Consultation*:* fpqrfi t!wjfx t!ubl fo!joup!bddpvou but decisions made by external agent who is under no obligation to accept local viewpoints

Participate for incentives: Time-bound, so participation ends when the incentives run out

Functional participation: form groups to meet pre-determined objectives driven by external stakeholders, usually after the planning phase

Interactive participation: People closely involved in information gathering, planning and decision-making; local perspectives favored, thus giving local stakeholders an incentive in maintaining structures and practices

Self mobilization: People take the initiative in planning, decision-making and action. Outside agencies provide technical support and play a facilitating or catalytic role, rather than directing the activities

Greatest self-reliance

Approaches for participatory irrigation development and management

The regional government of the Amhara National Regional State (ANRS) has recognized irrigation as a vital component for the improvement of food security in the region. However, the performance of the existing irrigation schemes is below expectation mainly due to low participation of farmers in planning, design and construction process. Diagnostic survey report of pilot irrigation schemes conducted by

SWHISA revealed that water shortage , overtopping caused by the poor physical conditions of existing irrigation infrastructure and inadequate maintenance of irrigation jogsbtusvduvsf! bsf! sfbtpot! gps! uif! mpx ! qfsgpsn bodf! bt! uif! x bufs! vtfst ! pshboj bujpot! (WUOs) have a chronic lack of funds for the proper management of irrigation systems. In addition, lack of an integrated approach in the provision of technical support and follow up to WUOs, and weak coordination and linkages among stakeholders involved in irrigation development and water management have also aggravated the problem.

In view of the increased focus on operation and maintenance (O&M) and Participatory Irrigation Management (PIM) Sustainable Water Harvesting and Institutional Strengthening in Amhara (Project expressed the need to develop a cohesive strategy to improve Participatory Irrigation Management (PIM) aimed at improving the performance of SSIS in the Amhara region.

Based on the aforementioned concept of participation, review of existing strategies and practices as well as the experience with the implementation of projects based on farmers participation in the development and management of irrigation systems in various countries in Africa and elsewhere, SWHISA has developed a step-by-step approach for the participatory development and management of small-scale irrigation systems in the Amhara region.

Participatory Irrigation Development and Management (PIDM) refers to the (active) involvement of farmers in the development and management of (their) irrigation systems along with the government, ranging from: a) being only informed; b) being informed and consulted; c) being informed, consulted and involved in decision making; and d) being informed, consulted, involved in decision making and responsible for irrigation management.

Irrigation Management Transfer (IMT) usually refers to the relocation of responsibilities and authority for irrigation management from government agencies to WUOs at sub-system levels (i.e. secondary and/or tertiary canals) or for entire irrigation systems, including: a) transfer of irrigation management functions, including

maintenance and payment for irrigation services; and b) transfer of decision-making authority, ownership of scheme infrastructure and water rights. Ufsn t! bt! uwsopwfs! take-over, handing over, devolution, privatization, self-management and ejtfohbhfn fou!bsf!vtfe!tzopozn pvtm!x jui!JN U/!

Expected benefits of PIDM

It is expected that the successful implementation of PIDM will have the following main important benefits as clearly stated in the subsequent sections of the procedure manual:

- Cfuufs!gvodujpojoh!pg!jssjhbujpo!tztufn t!evf!up! tfotf!pg!px ofstij jq'!bn poh!gbsn fst! due to their active involvement in the planning, design and construction supervision of the rehabilitation/modernization works;
- Improved operation and maintenance (O&M) of the irrigation schemes as farmers have full control over the planning and execution of the maintenance works and water distribution;
- Lower O&M costs as farmers are able to undertake the works at cheaper rates with their own (financial) resources (cost awareness);
- More efficient and equitable distribution of irrigation water as farmers have better control over irrigation supply and distribution;
- Improved payment of Irrigation Service Fee (ISF) as farmers are allowed to keep a significant portion of the collected fees for the O&M of the irrigation and drainage facilities;
- Less dependency on Government budget for development and O&M of irrigation and drainage systems as farmers will share in the costs;
- More transparent and accountable relations between farmers and the irrigation agency as farmers will only pay for the services provided in accordance with the terms and conditions of service contracts and;
- Increased irrigated area and higher yields due to more adequate, timely and equitable supply of irrigation water

Phases of PIDM Approach

The PIDM approach is sub-divided in the following 4 phases:

1. Study and Awareness Phase;
2. Design and Formation Phase;
3. Capacity Building and Construction Phase; and
4. Irrigation Management Phase.

The 15 steps of the PIDM approach are also shown in the flowchart below (Figure 1).

SWHISA project, as part of the overall project activities, supports the construction of four irrigation schemes with full financial and technical assistance at East Belesa, Wereillu and Menz mama woredas. SWHISA has allocated a total budget of Birr 6.24 million for the four schemes. Details are presented in Table 1.

Table 1. Irrigation Cooperatives (ICs) formed at the New Irrigation Schemes

Wereda	**Name of Scheme**	**Command area (ha)**	**Project Cost**	**Number of Beneficiaries**		
				Male	Female	Total
Were Illu	Barneb	81	1,317,028.38	397	65	462
Goncha	Gedil Ager	12	105,966.52	50	5	55
E. Belessa	Genet	24	3,802 693.89	137	6	143
Menz Mama	Enat Wuha	12	405,722.76	62	24	86

Obviously, one of the primary objectives of Water User Associations (WUA) and Irrigation Cooperatives (IC) is to operate and maintain the irrigation system efficiently and economically, and with the full and active participation of all the water users, as much as possible, in the various management activities.

However, the current challenge with regard to irrigation schemes in the project weredas is water users ! mbdl ! pg tfotf! pg px ofsti jq‘ ! jo! u f! pwfsbmmpqfsbujpo! boe! n bjoufobodf! activities. It has been clearly mentioned in one of the reports of the Canada International Development Agency (CIDA) monitor, who frequently monitors the performances of the project:

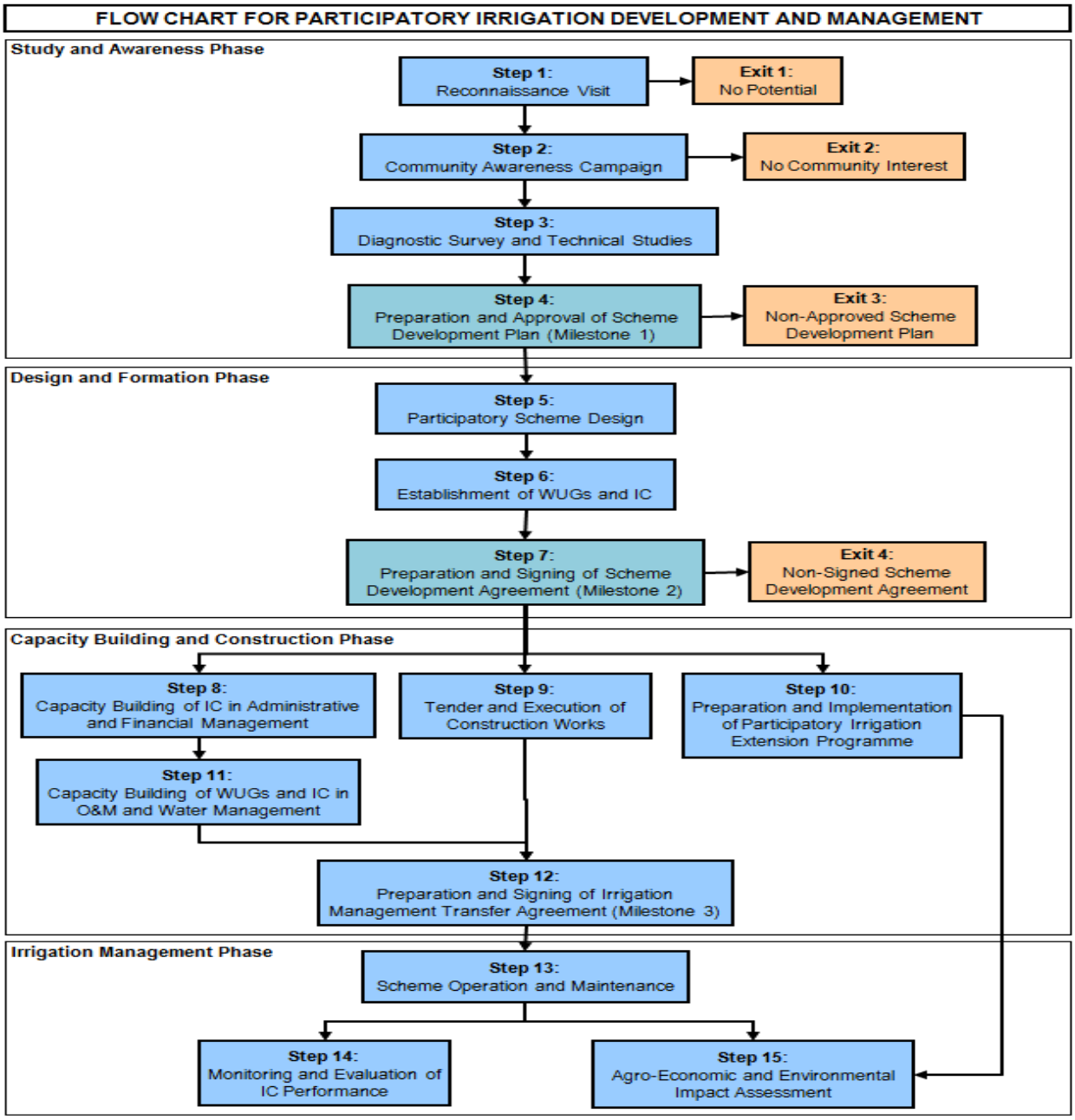

Fig. 1. Flow Chart for PIDM (Adapted from PIDM Procedural Manual, SWHISA 2011)

There are concerns about the lack of involvement of water users as well as Wereda Irrigated Agriculture Development Process (IADP), Cooperatives Promotion Agency (CPA) and extension staff in the implementation of rehabilitation works by contractors. This seems to be a wide spread concern and is very worrisome. That's because nearly all reviews of existing small scale

schemes point to lack of "ownership" by water users of these schemes. And this lack of ownership is a significant, if not the greatest constraint to scheme success.

Following the development of PIDM strategy document and subsequent trainings, a concrete action has been made in implementation of important steps of the strategy particularly at the newly constructed irrigation schemes with SWHISA support. An implementation guideline has been developed and distRibbuted to wereda CPA and IADP. Based on the PIDM approach, from the very beginning the willingness of the water users has been checked during the awareness campaigns and sensitization x psl ti pqt! boe! gpsn bujpo! pg! vtfst ! pshboj bujpo! x fsf! tpn f! pg! ui f! bdujwjujft! voefsubl fo! at the new irrigation schemes before the construction work started.

PIDM procedures and results of the case studies

Community awareness campaigns

One of the main aims of the Community Awareness Campaign is that the farmers have to become aware that they themselves have to participate actively in all stages of the PIDM approach. Accordingly, the awareness campaigns have been organized and conducted with the presence of wereda and regional level stakeholders. Generally the objectives of the awareness campaign were to:

- ensure the willingness of the beneficiaries; and upper- and down-stream water users towards the construction of the schemes,
- bttfttt! ui f! fyufou! boe! uzqf! pg! pgc fof gjdjbsjft ! qbsujdjqbujpo! evsjoh! ui f! efwfmpqn fou! boe! management of the schemes,
- e jtdvtt! x ju ! ui f! dpn n vo juz! po! ui f! jn qpsubodf! pg! ftubc mjtj joh! jssjhbujpo! x bufs! vtfst ! organization and,
- identify and discuss duties and responsibilities of stakeholders to be involved in the implementation of the stated SSIS.

Formation of Water User Groups (WUGs) and the IC

ICs have been organized before the construction work of these new schemes. The formation of the ICs was on the basis of the newly approved organizational guideline of

the regional CPA, which was recently reviewed based on the recommendations stated in the PIDM guideline document. At this stage review and adoption of the IC bylaws and the election of the members of the Management Committee (MC) is also included.

The ICs have been legally registered and opened a bank account after fulfilling the requirements stated by the new guideline, one amongst which states at least 51% of the x bufs! vtfst!)n bkps juz ! ti pvme! cf! bl n fn cfs! pg ui f! x bufs! vtfst ! pshbo j bujpo/! Ui f! JDt! have already discussed the issue of collecting an ISF in order to have sufficient funds for the O&M of the irrigation scheme, but the level of the ISF has not been set yet.

Diagnostic survey

The general objective of the Diagnostic Survey is to assess the existing social, economic and institutional conditions of the irrigation system, to descRibbe layout of the irrigation system as well as to establish baseline data for the irrigation scheme. The implementation of the Diagnostic Survey has been conducted by private consultants. During the study and design process the involvement of users was not as envisaged by the PIDM procedure. The challenge to the consultants was that, the participatory process is time taking, incurring additional costs and low capacity in terms of applying participatory tools and techniques during study and design. This has resulted in limited vtfst ! qbsujdjqbujpo/! I fodf ! ui jt! offet! up! cf! sfdpot jefsfd as the current trend towards SSIS study; design and supervision work seems to require out-sourcing to the private companies.

Participatory scheme design review meetings

The result of the diagnostic survey, using PRA tools, conducted at the existing pilot irrigation schemes at SWHISA project weredas revealed that, traditionally, irrigation schemes have been designed by engineers without consulting the farmers as the main users of these schemes. Consequently, the built schemes were not responsive to the needs and preferences of the farmers. The final result was that the users did not consider the O&M of the schemes as their responsibility, because they did not consider themselves as the owners of the irrigation schemes. The farmers regarded the irrigation agency, which had designed and constructed the schemes, to be responsible for O&M.

But, these agencies were often not capable or willing to perform the required O&M tasks, because they consider the work as the mandate of the users. . Consequently, the performance of irrigation systems is poor and its sustainability is low.

Evsjoh!ui f!qsfqbsbujpo!pg!ui f!tdi fn f!eftjhot!ui f!gbsn fst !qsfgfsfodft!x jui !sfhbse!up! the layout of the scheme were not properly assessed and discussed at SSIS, including the supply of irrigation water.

Jult!dmfbs!ui bu!jo!ui f!dbtf!pg!Hfofu!TTJT!pg!F btu!Cfmftb!x fsfeb!ui f! x bufs!sjhi ut'!pg! the households on the left bank of the river were not respected. Because the supply of irrigation water to the left bank was not considered in the final scheme designs at all. It resulted in a conflict between the landholders having land on the right bank and those with land on the left bank. However, during scheme design review meetings organized with the support of SWHISA in 2011, the water users have mentioned the problem and sfrvftufup!n pejgz!ui f!fyjtujoh!tdi fn f!eftjho/!Ui f!gbsn fst !sfrvftufx bt!bqqsfdjbufe!cz! the team and immediately it was proposed to modify the design by reducing the length of the secondary canals on the right bank in order to have funds for the construction of a canal to the left bank. The IC management has also confirmed that the IC fully supports the idea to supply irrigation water to the left bank. The amendments in the scheme design were also fully accepted by BoWRD and SWHISA. Later the contractor has been informed about the proposed changes in the scheme design and received the modified designs for implementation.

The same is true for Barneb SSIS of Wereillu Wereda that water users requested to revise the scheme design by including a retaining wall on the main canal. SWHISA and BoWRD including wereda level partners appreciated the request of the farmers and sftqpoefe!qpt jujwfmz!up!sfwjtf!ui f!eftjho!bddpsejohmz/!Ui jt!i bt!efn potusbufe!ui bu!vtfst ! participation in the overall scheme construction is more than contRibbution of labor and construction materials.

Handing over the scheme construction work to the contractor

Though the ICs management members were not involved during the scheme construction bid process, a formal meeting was organized to hand over the construction site and to introduce the contractors with the ICs management and wereda stakeholders. The contractors were also openly informed that the ICs are the owners of the scheme and would be actively involved during the subsequent formal construction supervision activities with the concerned government agencies at wereda, zonal and regional level. In the mean time the IC management was informed about the total cost of the scheme construction project, date for completion and handing over of the scheme.

Monitoring and quality control during the execution of the construction works

Ui f! spmf! pg ui f! JDt! boe! vtfst ! fyqfdufe! dpouRibbution during the construction of the schemes including monitoring and evaluation has been clearly defined. The ICs formed at these new irrigation projects are being actively involved in the day-to-day follow up of scheme construction and participate during the joint monitoring and construction supervision with the regional and zonal Irrigation Design and Development Process)JEE ! boe! TX I JTB! fyqfsut/! Ui f! vtfst ! qbsujdjqbujpo! bu ui f! tdi fn f t! jt! n psf! ui bo! labor and local construction material contRibbution. The ICs have taken the initiative to assign their representatives on daily basis to follow up the quality of construction works and to inform the wereda IADP and zonal and regional IDDP whenever the need arises. In this regard Genet and Barneb ICs have demonstrated better sense of scheme ownership from the very beginning and actively took part in decision making.

Moreover, concrete actions are being taken by the water users whenever sub-standard construction materials and improper material ratio such as sand-cement-gravel are used. Though it was challenging to accept, the contractors are also well aware and recognized the water users as the owner of the scheme and have the authority to stop the construction work if they believe that quality of the construction work is compromised.

IC capacity building

As it is envisaged from the beginning, upon completion of the construction, the ICs will take over the O&M responsibility for the irrigation schemes. The weredas have

organized a training to develop the capacity of the newly established ICs in administrative and financial management and scheme O&M. This capacity building training includes the assessment, billing and collection of ISF. This is a preparatory work for the IC management to be fully functional after the scheme construction work is completed and handed over to the beneficiaries.

Gender issues

In principle, during all stages of the PIDM approach, the specific needs and preferences of female farmers needs to be taken into account with regard to the planning, design and management of the irrigation system. As it is recommended in the procedure manual and amended in the ICs establishment guideline, at least 20% of the seats in the Management Committee (MC) of the IC are reserved for female farmers to ensure that the specific needs and preferences of female farmers are taken into account during the planning and execution of the O&M activities.

To develop a sense of ownership and responsibility for O&M among the users of irrigation schemes, it is required that the users are involved in all the stages of the development of an irrigation system. Especially during the design of the scheme, n byjn vn ! vtfst ! qbsujdjqbujpo! jt! b! qsfsfrvjtjuf! gps! tvddfttgvmhtdi fn f! efwfmpqn fou! because the most important decisions are made during this stage. To enable farmers to participate effectively in the design of irrigation scheme, it is important to consider the elaboration of the design as a step-by-tufq!qspdftt!evsjoh!x i jdi ! gbsn fst ! qsjpsjujft! boe! preferences are matched with technical and financial possibilities.

Lessons Learned

- Involving farmers as early as the planning phase ensure that project planning, design, construction and management are acceptable to individual farmers and it bmp!foi bodft!gbsn fst !tfotf!pg!px ofsti jq/
- The strongly participatory processes imbedded in PIDM promotes both individual and community participation. It also encourages commitment and contributions towards a set of common goals and objectives, as articulated by the consensus-driven Action Plan.

- Firmly-grounded community engagement fosters self-reliance and helps to decentralize planning, thus reducing the long-term dependency of irrigation water users on the government budget for O&M of irrigation schemes. It is a truly bottom-up approach to facilitating the development of irrigation projects, both large and small scale.
- Evidence to date from Genet and Barneb SSIS suggest that the PIDM based engagement process will lead to better designed irrigation projects because of required engagement conditions in participatory scheme design that ensure better appreciation of the development and management objectives of irrigation.
- Ftubcmjti joh! vtfst ! pshboj bujpo! bluif! fbsmz! tubhf! pgui! qspdftt! bmpxt! jssjhbujpo! xbufs! vtfs t! qbsujdjqbujpo! gps! pqfo! boe! usbotqbsfoutfqpsujoh ! hppe! sfdpse-keeping and on-going construction supervision and quality control, and participatory scheme monitoring and evaluation.

Recommendations

- The existing institutional set up is not appropriate to fully implement the PIDM approach. To ensure that the PIDM approach is implemented in an integrated and coordinated manner, it is vital that the main government stakeholders (i.e. IDDP, IADP and CPA) work closely together. It is therefore, recommended that there is a need to establish a platform comprising an inter-disciplinary Scheme Development Team comprising the three main stakeholders.
- There is a need to build the capacity of private and governmental enterprises involved in study, design, supervision and construction of small scale irrigation schemes on the implementation of PIDM procedures and application of participatory tools and techniques.
- Capacity building of farmers in organizational management and scheme O&M needs to be delivered side by side with the ongoing scheme construction activities so that the scheme could be operational immediately after the formal handing over to the IC is completed.

Literature cited

Jules N Pretty, Irene Guilt, Ian Scoons and John Thompson, 1995. Participatory Learning and Action; A Trainers Guide. International Institute for Environment and Development. London, UK

Mathie, A. and Samuel Molla. 2006. Asset-Based Community Development. Coady International Institute. Workshop manual**.**

SWHISA, 2011. Procedure Manual for Participatory Development and Management of Small-Scale Irrigation schemes.

SWHISA, 2011. Bi-annual Progress Report (July 2011-December 2011)

SWHISA, 2007. Participatory Rural Appraisal of Azuari Irrigation Scheme Diagnostic survey Report

BDU, BOWRD and SWHISA, 2009. Proceedings of Workshop on Experiences in Household water Harvesting and Irrigation Water Management in Amhara. Bahir Dar. March 19-20, 2009.

Verheijn, O, 2010. Strategy Paper on Participatory Irrigation Development and Management. SWHISA Project.