CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

LED BY: IWMI International Water Management Institute

RESEARCH FOR DEVELOPMENT (R4D) LEARNING SERIES

ISSN 2522-7076

9

How to Support Effective and Inclusive Irrigation Water Users' Associations: A Guide for Practitioners

Douglas J. Merrey and Nicole Lefore

IFAD Investing in rural people

R4D Learning Series

About WLE

The **CGIAR Research Program on Water, Land and Ecosystems (WLE)** is a global research-for-development program connecting partners to deliver sustainable agriculture solutions that enhance our natural resources – and the lives of people that rely on them. WLE brings together 11 CGIAR centers, the Food and Agriculture Organization of the United Nations (FAO), the RUAF Foundation, and national, regional and international partners to deliver solutions that change agriculture from a driver of environmental degradation to part of the solution. WLE is led by the International Water Management Institute (IWMI) and partners as part of CGIAR, a global research partnership for a food-secure future.

About the Series

The **WLE Research for Development (R4D) Learning Series** is one of the main publication channels of the program. Papers within the series present new thinking, ideas and perspectives from WLE research with a focus on the implications for development and research into use. Papers are based on finalized research or emerging research results. In both instances, papers are peer-reviewed and findings are based on sound scientific evidence and data, though these might be incomplete at the time of publication.

The series features findings from WLE research that emphasize a healthy functioning ecosystem as being a prerequisite to sustainable intensification, resilience of food systems and human well-being. The series brings together multi-disciplinary research, global synthesis and findings that have implications for development practitioners and decision makers at various levels.

CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

LED BY: IWMI International Water Management Institute

IN PARTNERSHIP WITH:

Bioversity International · CIFOR · CIAT · CIP International Potato Center · FAO · ICARDA Science for resilient livelihoods in dry areas · ICRISAT International Crops Research Institute for the Semi-Arid Tropics · IFPRI International Food Policy Research Institute · ILRI International Livestock Research Institute · RUAF Foundation · World Agroforestry Centre · WorldFish

RESEARCH FOR DEVELOPMENT (R4D) LEARNING SERIES 9

How to Support Effective and Inclusive Irrigation Water Users' Associations: A Guide for Practitioners

Douglas J. Merrey and Nicole Lefore

The Authors

Douglas J. Merrey is an independent consultant, Natural Resources Policy and Institutions Specialist, residing in Gainesville, Florida, USA (dougmerrey@gmail.com). He worked for the International Water Management Institute (IWMI) for over 20 years, and was the first Director for Africa.

Nicole Lefore is Senior Project Manager - Research for Development at the Southern Africa Office of IWMI, Pretoria, South Africa. She works on irrigation, institutions and gender.

Project

This research study was undertaken as part of the *More effective and sustainable investments in water for poverty reduction* project supported by the International Fund for Agricultural Development (IFAD), Grant No. 200000119.

Donors

International Fund for Agricultural Development (IFAD)

This research was carried out as part of the CGIAR Research Program on Water, Land and Ecosystems (WLE) and supported by Funders contributing to the CGIAR Trust Fund (https://www.cgiar.org/funders/).

Citation

Merrey, D. J.; Lefore, N. 2018. *How to support effective and inclusive irrigation water users' associations: a guide for practitioners*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 15p. (WLE Research for Development (R4D) Learning Series 9). doi: 10.5337/2018.227

/ research and development / learning / irrigation water / irrigation management / irrigation efficiency / water users associations / best practices / guidelines / farmers organizations / irrigation schemes / collective action / small scale systems / policy making / investment / costs / gender / training programmes / monitoring / evaluation / water policy / water governance / water institutions / water availability / nongovernmental organizations / sustainability / stakeholders / infrastructure / socioeconomic environment / communities / local authorities /

ISSN 2522-7106 (Print)
ISSN 2522-7076 (Online)
ISBN 978-92-9090-878-4

Front cover image: Visit to a field in Diga village, Ethiopia (*photo:* Desalegne Tadesse/IWMI).

Designer: Sumith Fernando

Editor: Mahen Chandrasoma

Disclaimer

The opinions expressed in this paper and all errors are the responsibility of the first author. They do not reflect the position of the CGIAR Research Program on Water, Land and Ecosystems, or of the institutions and individuals who were involved in the preparation of the report.

CONTENTS

Boxes

Photo: Desalegne Tadesse/IWMI

INTRODUCTION

The purpose of this Guide is to provide an overview of the major considerations and steps to be followed in organizing new irrigation farmers' organizations – referred to as Irrigation Water Users' Associations (IWUAs) in this report. A basic assumption is that a specialized formal IWUA is the optimum option for implementing a program aimed at creating or improving a collectively managed irrigation scheme. The Guide is focused on programs involving the construction of new irrigation schemes; rehabilitation, modernization or revitalization of existing irrigation schemes; or supporting farmers wishing to improve the performance of their irrigation scheme. Therefore, the intended audience for this Guide is the set of practitioners responsible for planning and implementing such programs, e.g., managers of publicly or externally supported projects, government agricultural and irrigation officials, private initiatives and nongovernmental organizations (NGOs).

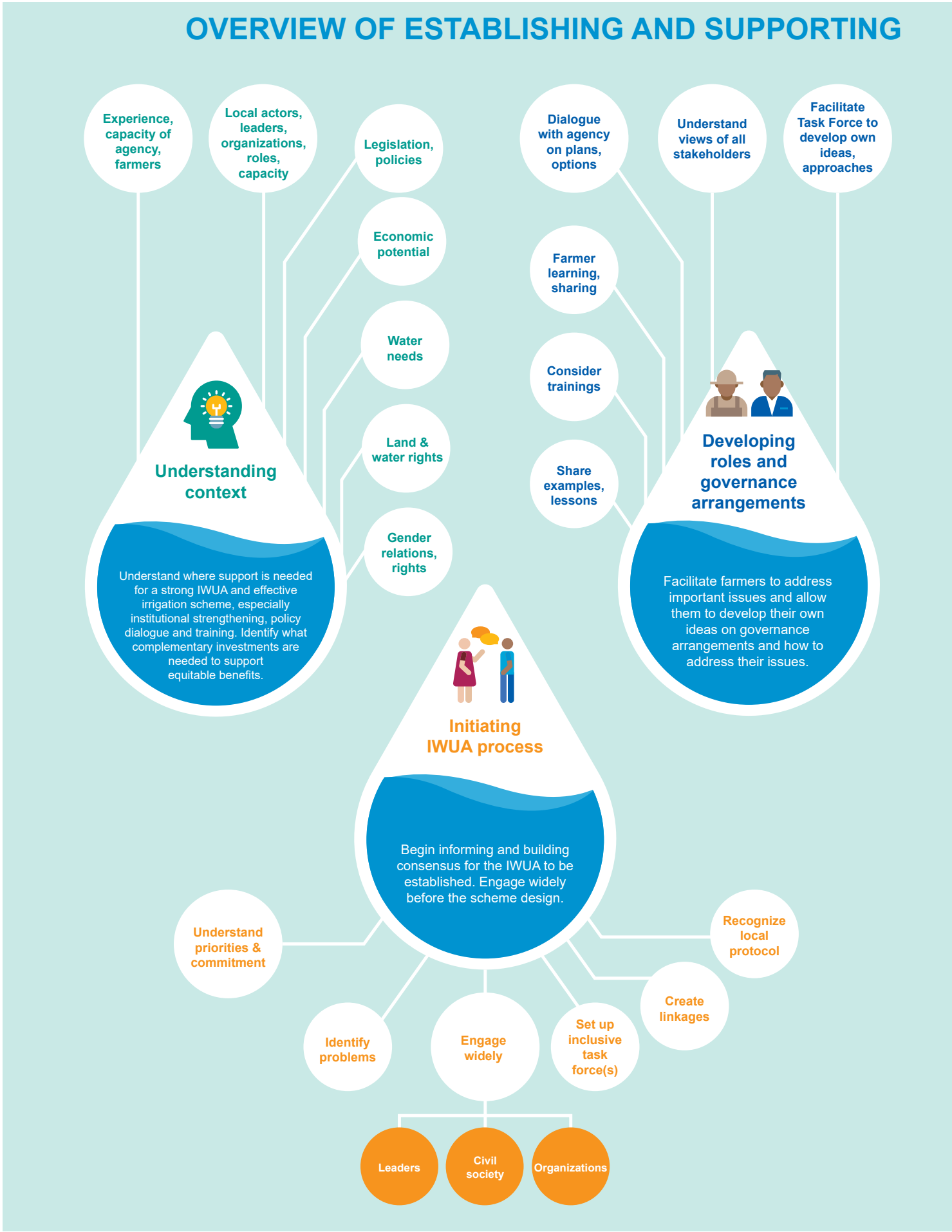
'Collectively managed irrigation schemes' refer to irrigation schemes that are based on surface water, groundwater, or the conjunctive use of both, that provide water delivery services to around 15 or more farmers, and whose operation and maintenance (O&M) requires the farmers to cooperate. The goal should be sustainable, productive and equitable supply and use of water. The Guide is applicable to small-scale irrigation schemes managed mainly by farmers, as well as those jointly managed by farmers and government agencies or other entities.

The Guide draws on over 50 years of experience in organizing farmers to participate in the creation, improvement and management of both farmer-managed and government-managed irrigation schemes. The major lesson learned is that investing in the "software" component – training and institutional development – of irrigation is critical for success. If the IWUA is weak or ineffective, the scheme will fail to achieve its potential, no matter how good the hardware is (e.g., infrastructure or technology). A major reason why many past irrigation investments have not performed as well as expected is that governments and donors have both underinvested in the "software" components and attempted to impose impractical blueprints or institutional designs that have not been accepted by farmers.

A specific Theory of Change (ToC) informs this Guide. A ToC can be defined as a verifiable hypothesis about how institutional development and change occur. The ToC used here can be summarized by the concept of 'institutional *bricolage*', which is that the most effective approach to helping farmers establish and strengthen IWUAs that fit their needs and are effective and sustainable is to facilitate and encourage a creative, even if somewhat messy and unpredictable, process whereby local people construct their own organization. In the past, too many projects have tried to impose a specific organizational design or blueprint for what an institution should look like and do. This kind of 'social engineering' is rarely successful.

This Guide is organized around six 'steps' to be followed, more or less in sequence (Figure 1). Using these steps creatively as a guideline, not as a recipe to be followed scrupulously, will increase the likelihood that irrigation investments achieve the desired project goals.

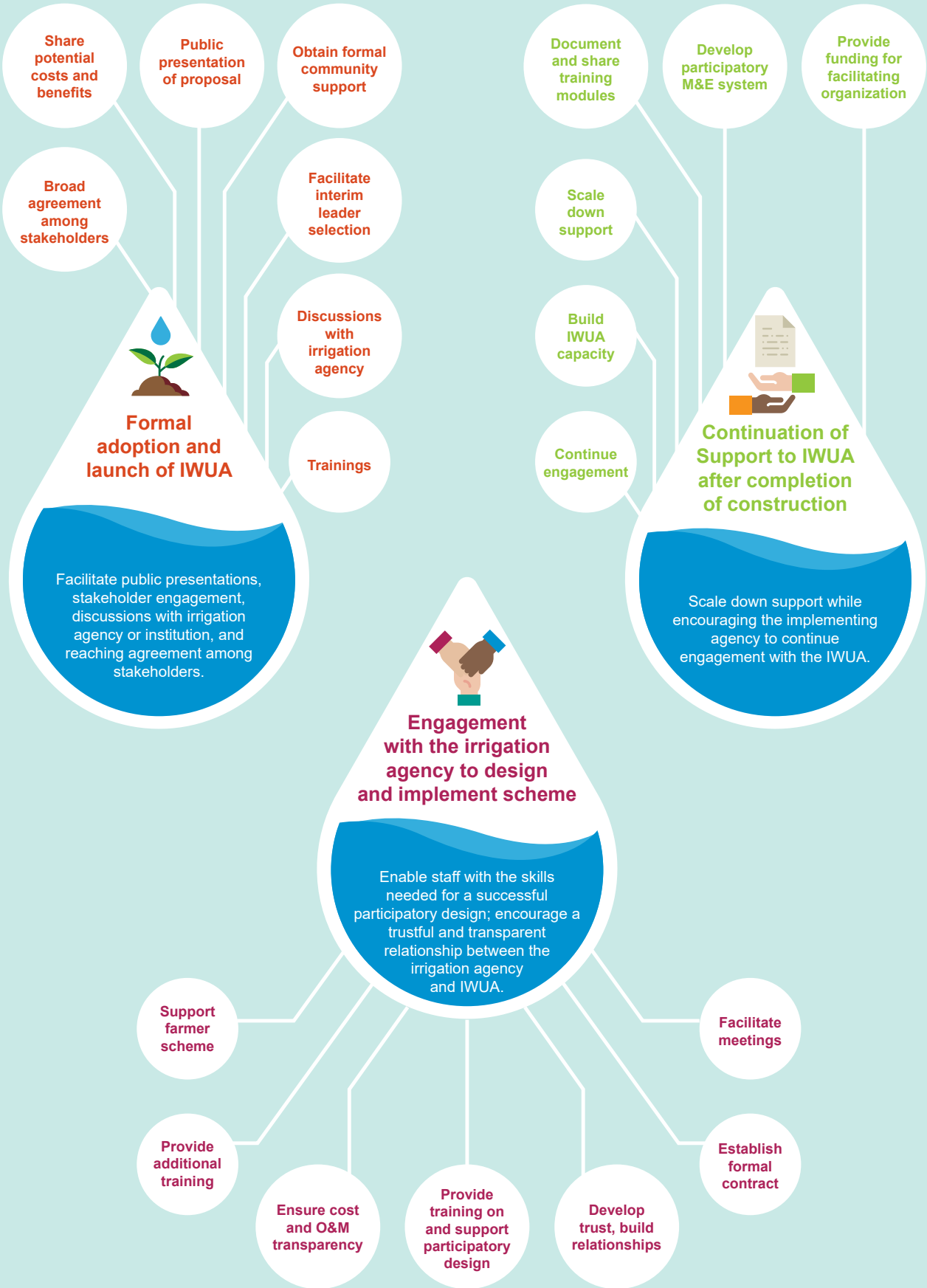
FIGURE 1. THIS GUIDE IS ORGANIZED AROUND SIX STEPS THAT CAN BE FOLLOWED TO INCREASE THE LIKELIHOOD OF IRRIGATION



Note: IWUA – Irrigation Water Users' Association; O&M – Operation and maintenance; M&E – Monitoring and evaluation

INVESTMENTS ACHIEVING THE DESIRED PROJECT GOALS.

SUCCESSFUL IRRIGATION WATER USERS' ASSOCIATIONS



Step 1: Understanding the Policy, Social and Institutional Context

At the earliest stage of the project cycle – indeed, for the International Fund for Agricultural Development (IFAD), when formulating the Country Strategic Opportunities Program (COSOP) – an assessment should be carried out to understand how well government policy supports farmers' collective management of irrigation schemes, and what further changes would be needed to increase the likelihood of success. For example, is there a need for additional legislation? If there is legislation, is it a flexible guideline or does it mandate a detailed organizational design? Does it provide clear authority to IWUAs? A law mandating very specific structures or bylaws is unlikely to work well, and vagueness on the responsibilities and authority of the IWUA is also not conducive to forming strong organizations. Another important area is policy and law governing both land tenure and water rights. Do farmers have secure landownership, tenure or use rights? Will the proposed irrigation scheme have secure rights to water? Is the legal status of the irrigation infrastructure clear? Do women have the same rights as men or is gender inequality an issue that needs to be addressed? Finally, an initial assessment should be made of the implementing agency's experience with and approach to working with IWUAs.

The assessment at this stage would identify areas where policy dialogue leading to reforms and/or strengthening of the implementing agency is required to support the emergence of strong IWUAs. This dialogue should be initiated at an early stage, before committing to a specific irrigation investment project.

At the project design stage, it will be critical to gather more details regarding both (i) the experience of the implementing technical agency with IWUAs and participatory irrigation management; and (ii) the capacities needed to facilitate strong IWUAs (see Box 1). For example, which organization(s) will take the lead in working with farmers to establish/strengthen their IWUAs, and what kind of support and training do they need, if any? If several agencies are involved, as is the case in some countries, are there effective mechanisms to ensure coordination of their actions? The organization tasked with supporting farmers should have the expertise and capacity needed to work with men and women farmers to facilitate the establishment/strengthening of the IWUAs, and to design and implement appropriate experiential training exercises. If there is no such organization, an investment in building the capacity of potential partners will be needed.

Another important topic is understanding the local social and economic structure and dynamics. For example, what are the most important existing local organizations and institutions, how do they operate, and what are their current and potential future roles? What is the situation with regard to social and economic inequality (e.g., based on gender, age, ethnicity, land tenure)? What is the local experience with collective management of water or other resources, if any? What is the role and effectiveness of local government arrangements, and how will these affect IWUAs?

A topic that is often not addressed effectively is the complex set of questions around land tenure and water rights, as well as the legal status of infrastructure. In many local contexts, there is a mixture of both formal tenure and rights (i.e., based on laws), and informal or traditional practices regarding access to and use of natural resources. An example is seasonal changes in who has access to land (for example, cultivators in the rainy season, and pastoralists in the dry season). We recommend accepting the reality of a plurality of such rules and avoiding imposition of the requirements of the formal legal system. However, it will be important to get all the stakeholders to agree on the access and use rights necessary for the irrigation scheme to be a success. Where there are gross inequities in rights to land and water resources, or the local system is not conducive to a viable irrigation scheme, the government should consider negotiating a formal reallocation of these rights (with fair compensation to losers, if necessary) as a condition for continuing with the irrigation investment. In addition, as part of the agreement for the project, there needs to be clarity on the ownership of the irrigation infrastructure (see Box 2, below, on the creation of hydraulic property).

In societies with very strict gender segregation, we do not recommend attempting to overcome such inequities

BOX 1. A NOTE ON IMPLEMENTATION ARRANGEMENTS.

This Guide assumes that a technical government irrigation agency is responsible for the implementation of the irrigation investment program – for example, a donor-supported project – and that this project may be financing work on multiple irrigation 'schemes' or 'systems'. This Guide could also apply to private sector initiatives and the company investing in irrigation development. If this agency, organization or company does not have a strong track record in working with IWUAs in an effective, participatory manner, the project should invest up-front in supporting training and facilitation to develop the required skills and organizational culture. This will involve a continuous engagement process to reorient the agency approach. In addition, we strongly recommend that the implementing agency contract an external organization, perhaps an NGO, with the experience and capacity needed to facilitate farmers to form and strengthen the capacity of their own IWUAs. This team of facilitators will need to be in place for sufficient time to assist the IWUA to become sustainable and effective, but the level of effort will be scaled down over a few years. Throughout this Guide, we use 'facilitators' (plural form), as experience shows that a team of facilitators, perhaps working on several adjacent schemes, will be more effective than a single facilitator working by herself or himself.

BOX 2. IRRIGATION DEVELOPMENT AS HYDRAULIC PROPERTY CREATION.

One way to understand the development of irrigation infrastructure is that both users and the government are co-investing in the creation of "hydraulic property." User-investment generates collective water property relationships, and embeds collective and individual water rights in the design of the infrastructure. This process triggers and supports, even necessitates, continuing collective action to make use of the newly created hydraulic property.

through the IWUA process. Rather, we recommend identifying potential complementary investments that could improve the well-being and nutritional status of women and children. Examples are home gardens to produce fruits and vegetables, and raising livestock (depending on what is feasible locally). However, in societies where gender barriers are not strong or are breaking down – for example, because men are migrating to cities for work – it may be possible to empower women to play significant leading roles in IWUAs. The *Gender in irrigation learning and improvement tool* (http://www.iwmi.cgiar.org/Publications/Other/training_materials/gender_in_irrigation_learning_and_improvement_tool.pdf) can be used to identify potential strategies for improving gender equity.

All humans depend on water for many different purposes. There is now considerable evidence that schemes designed for a single purpose, for example, irrigation or domestic water supply, are often undermined as people try to use them to meet other water needs as well. Further, women often have different water use priorities than men. Therefore, it is critical to work with the local community (women as well as men) to identify their water needs and potential sources of water to meet these needs. It may be necessary to design the irrigation scheme in a way that meets some of those needs, making it a 'multiple use water system'. Examples are providing livestock watering holes or places for doing laundry, provision for filling farm ponds, supplying water for domestic use, or even delivering water for maintaining non-agricultural ecosystem services (see Box 3).

Another set of questions to be considered is what experience with and knowledge of irrigation do farmers have? Is it individualized irrigation (own pumps, watering cans, etc.) or collective management of irrigation schemes? If they have little experience with irrigation, a robust training program will be needed. Likewise, if they have little experience with collective management of water or other resources, more training and support will be necessary to develop and strengthen these skills.

Finally, what is the economic potential of introducing or improving an irrigation scheme? Is the planned project commercial with a high profit potential or more focused on subsistence of poor farmers? An important lesson from the past is that irrigation projects aimed at local food security and not commercial production are difficult to sustain because farmers cannot afford to pay the O&M costs, even where these are marginal. The program or project goals and design must be aligned with farmers' expectations and capacities with regard to covering costs.

It should be clear from the range of issues and questions suggested here that introducing social or institutional changes is a complex process. Supporting self-organization processes with an informed understanding of the social and institutional context is likely to be more effective than imposing specific institutional arrangements.

BOX 3. IRRIGATION AS A COMPLEX SOCIOECONOMIC-AGRO-ECOSYSTEM.

An irrigation system is far more than simply infrastructure bringing water to fields to support the production of crops. Introducing irrigation infrastructure into a local area creates an entirely new context. It transforms the natural resources system, including land, water, natural flora and fauna, and ultimately the entire agro-economic system and the social relationships among people. An entirely new value chain is created, with new opportunities for many stakeholders, not only farmers. However, it also creates new challenges and risks. There may be growing competition over limited water resources that must be managed to avoid conflict. It might also increase the potential for degradation of soil and water quality, which will require a mitigation plan. The scheme may supply water for purposes other than irrigation. External forces, such as changes in global or national markets or the natural climate, can create new risks as well as potential opportunities. Therefore, twenty-first century IWUAs are not just for managing irrigation water; they must be capable of responding to many new challenges and opportunities.

Step 2: Initiating the IWUA Process

The process of creating or strengthening the IWUA should begin early in the project implementation phase, well before the design phase for planned construction of irrigation schemes. Designing the scheme should begin only when there is an IWUA with which to engage that has expressed its strong interest and commitment. Before initiating the process of establishing an IWUA, the facilitators should make sure they are well informed about the local context (Step 1), and the key social, political and economic actors in the community/area. Following local protocol, the facilitators should arrange to meet a wide variety of local leaders as well as ordinary citizens (women, men, youth, minorities) to introduce themselves; ascertain the interests, priorities, potential issues/problems; and begin informing people of the proposed program.

Based on what they have learned, and the relationships established, the facilitators should then work with community leaders to organize public meetings with all the stakeholders. Every effort should be made to schedule the meetings at times and places convenient for most people, including women. If transport or meshing schedules of different stakeholders is a problem, consider holding a number of public meetings at different locations and times. Use these to begin informing the stakeholders of the proposed project, and ascertain their interest, commitment, initial views and issues.

Use these meetings to facilitate local people to create a reasonably inclusive Task Force or organizing committee to work on the IWUA. The facilitators should encourage maximum inclusiveness and equity of *Task Force* members, but be realistic about what is possible. A possible option is to create separate task forces, for example, for women and men.

Step 3: Developing the IWUA Roles and Governance Arrangements

In this step, facilitate the Task Force(s) to develop their ideas on the roles and governance of their IWUAs. While examples of other bylaws or governance arrangements can be shared with the Task Force members, especially if they have been shown to work in similar communities, the process must be led by the farmers. This is very important: decades of experience have demonstrated that imposing inappropriate institutions that do not resonate with local culture will fail. The facilitators need to assist the farmers to address important issues, while allowing and supporting them to develop their own ideas on how to address them. Examples include conflict resolution mechanisms, financial management, water-sharing mechanisms, and even membership. If the scheme will be supplying water for multiple needs, not only irrigation, opening IWUA membership to the wider community should be considered. If there are specific legal membership requirements regarding equity, gender, or other issues (for example, requirements for representation of women), the farmers must be informed but left to work out ways to address these issues themselves. The facilitators can make suggestions and guide this negotiation process, but must not impose their views. It is also important to accept that this step may take some time, possibly months, and cannot be rushed.

This process must include dialogue with the irrigation agency on its proposals and ideas. While detailed discussions and negotiations can be postponed until Step 5, it is critically important that the farmers have a clear idea of the proposed options, possible benefits and costs across different phases of the project, and any implications for the design of their IWUAs. For example, involving farmers in the joint management of large schemes may require a more elaborately structured organization.

As part of this process, it will be important to facilitate the engagement of the Task Forces with other stakeholders to get their views, inputs, suggestions – and generate support. Examples of other stakeholders include female and male farmers who will be included in the irrigation scheme, local government officials, traditional community leaders, the irrigation and other specialized agencies (e.g., those responsible for agriculture, domestic water supply), and local business people involved in the value chain. Here, the Task Forces are operating much like an "innovation platform." As the Task Forces develop their ideas and proposals, they should present their initial plans at public meetings to obtain feedback and suggestions and build community support. The Task Forces should use this feedback to finalize the IWUA proposal.

If possible, explore the possibilities of facilitating farmer-to-farmer exchanges to share experiences and learn from the experiences (positive and negative) of other irrigation schemes. Farmer-to-farmer knowledge sharing is a proven methodology to build knowledge and capacity.

Step 4: Formal Adoption and Launch of IWUA

Once the members of the Task Forces have agreed on a proposal for creating a new IWUA, or reforming/strengthening an existing IWUA, the next step will be to facilitate public presentations of the IWUA proposal and obtain broad agreement among stakeholders, including formal community endorsement. The Task Forces will have already discussed their proposals with key local leaders (some of whom may be members of the Task Forces) and obtained broad agreement. It may require a series of public meetings to reach this stage.

As part of this process, the facilitators should make sure the IWUA Task Forces and other stakeholders have a broad idea of the potential costs that may be incurred (finance, labor contributions, management responsibilities for the completed scheme), as well as the potential benefits. The details will be developed in Step 5, but even at this stage, the farmers must be aware of the likely range of costs and benefits throughout phases of the project. If the community members cannot accept the costs, the project should not proceed.

Once the IWUA is formally approved by its members and there is agreement to proceed, the community needs to select interim leaders to be responsible for registering the IWUA (based on local legal requirements) and initiating discussions/negotiations with the irrigation agency. The facilitators can support and guide this process but must avoid imposing favorites, which will require some skill, especially since the facilitators should also try to prevent inappropriate leaders from being selected. We suggest that these interim leaders should lead the project implementation process until completion. Upon completion, i.e., after completing Step 5, the IWUA should hold an election to select the leadership for the operational phase.

The facilitators should organize training for the interim leaders, based on what they mutually agree is needed. Examples of topics that could be covered by trainings are negotiation and leadership skills, administrative and financial management, and technical options for the design and operation of the planned irrigation scheme. Training courses in basic irrigation skills could also be offered to the membership (Box 4).

BOX 4. SOURCES FOR DESIGNING IWUA TRAINING PROGRAMS.

It is surprising how few well-designed courses are available for training IWUA leaders and members. Many of those designed in the past were never put online and now cannot be found. Effective training courses will be designed for specific contexts. We are aware of a few such courses that could be adapted for use in various contexts. These include the following:

Lempériere, P.; van der Schans, M.L.; Bavanirajan, V.J.G. 2014. *Research for development using participatory rapid diagnosis and action planning for irrigated agricultural systems: A manual for development researchers and practitioners*. Updated edition. Colombo, Sri Lanka: International Water Management Institute (IWMI); Rome, Italy: Food and Agriculture Organization of the United Nations (FAO). 134p. doi: 10.5337/2014.225. http://www.iwmi.cgiar.org/Publications/Other/training_materials/research_for_development_using_prda_for_irrigated_agricultural_systems.pdf

Lempériere, P.; Hagos, F.; Lefore, N.; Haileslassie, A.; Langan, S. 2014. *Establishing and strengthening irrigation water users associations (IWUAs) in Ethiopia: A manual for trainers*. Colombo, Sri Lanka: International Water Management Institute (IWMI). 76p. doi: 10.5337/2014.232. http://www.iwmi.cgiar.org/Publications/Other/training_materials/establishing_and_strengthening_irrigation_water_users_associations_in_ethiopia.pdf

Water Care. n.d. *Tool for training of water users' committees*. http://water.care2share.wikispaces.net/file/view/Training_tool_villagewatercommittee.pdf

Agriteam Canada Consulting Ltd. 2016. *Procedure manual for establishment, registration and capacity development of irrigation water users' associations on small-scale irrigation systems*. Version 1a. Prepared in association with Small Scale and Micro Irrigation Support Project. http://smis-ethiopia.org/wp-content/uploads/2015/11/IWUA-Development-Procedure-Manual-v1-final-10June16.docx.pdf

Step 5: Engagement with the Irrigation Agency to Design and Implement the Scheme

Before the detailed engagement of the irrigation agency professionals with the IWUA leaders begins, it may be necessary to provide training to the design engineers and agricultural support staff on the skills needed for successful participatory design of irrigation infrastructure. Professionals must be willing to listen closely and respectfully to farmers, communicate effectively with them, and be creative in trying to accommodate farmers' priorities and wishes without compromising the integrity of the scheme. Ultimately, it is the farmers' scheme, not the engineers' scheme. Examples include accommodating demands for water to meet uses other than irrigation, or the location of field canals and outlets.

In the early stages, it may be necessary to facilitate the meetings of IWUA leaders, irrigation engineers and agricultural specialists, as well as officers from other related agencies and organizations. As soon as possible, a trusting relationship between the agency professionals and farmers needs to be developed. This may require investing in some exercises focused on building this relationship. As the project progresses, the facilitators should be able to reduce their role and become involved only to assist in solving new problems or managing conflicts.

It is very important to have a complete and transparent initial understanding of the total costs for both construction and subsequent O&M of the irrigation scheme, and how these costs will be apportioned. Regarding construction, the agency and IWUA need to reach a formal agreement on what costs (financial and/or in-kind) will fall to the IWUA, and the IWUA leaders will need to ensure the members are prepared to accept these costs.

Regarding O&M of the scheme, engineers and agricultural specialists must clearly explain the alternatives and their costs and benefits, including operational costs, as well as the level of engagement required by the IWUA to manage and maintain the scheme. They should also explain the government's own obligations vis-à-vis O&M of the scheme. The scheme agreed upon by all parties must be affordable and manageable (sustainable) while meeting the economic aspirations of the farmers. For example, more costly schemes can only be justified if there is a good market for highly profitable products, while schemes intended for improved food security through household production plus some supplementary sales need to be low cost and easily managed/ maintained. There are important trade-offs to be considered, since some farmers may be attracted by lower-cost options in the short term but may end up finding O&M costs too high and benefits too low in the long run.

The final project design, including clarity on costs and benefits, roles of IWUA and other agencies both during construction and afterwards for long-term implementation, must be explained clearly to the entire membership, recorded, and formally agreed upon by all parties. We recommend a formal contract between the IWUA and the implementing agency on roles, responsibilities, water deliveries, and cost recovery to avoid misunderstandings. This may include subsidies from the government if needed, since irrigation schemes constitute a public good to some

degree and reasonable subsidies can be justified if they are affordable by the government.

Again, it may be necessary for the facilitators to provide additional training for farmers to participate actively in both the construction and subsequent O&M of the scheme. The IWUA should be assisted in considering several options for implementing their responsibilities, including self-management, where farmers carry out all responsibilities; IWUA hiring staff to operate and maintain or guard the system; or IWUA contracting service providers to fulfill these and other functions.

Finally, during the construction period, constant open communication between the IWUA leaders, the implementing agency and the contractors (if any) is vital. In some cases, it may be possible to give the IWUA leaders a role in selecting contractors, in which case, these leaders should then also be encouraged to monitor the construction process. As the project progresses, many issues will inevitably arise, and there is a danger that misunderstandings can cause problems. The IWUA leaders must also maintain frequent and open communication with the IWUA members.

Step 6: Continuation of Support to IWUA after Completion of Construction

Premature withdrawal or reduction of support to the IWUA may lead to its collapse or inability to achieve the planned potential productivity and profitability; or the capture of the scheme and its benefits by a powerful minority. The level of support provided directly to the IWUA should be scaled down once the scheme is functioning to avoid overdependence on the facilitators. On the other hand, the implementing agency should either retain or contract for the capacity to assist the IWUA if it runs into serious problems. It should be prepared to provide continuing training and capacity strengthening as a means to achieve the full scheme potential.

Therefore, we recommend project funding should include resources for the facilitating organization to remain engaged with the IWUA to provide advice, training, or other support for about 5 years, but at a diminishing level of effort. The irrigation, agricultural and related community development agencies must also remain fully engaged to provide necessary technical support over the longer term, i.e., beyond the life of the donor- or government-supported project.

In the twenty-first century, IWUAs are not only for managing irrigation schemes (see Box 3). They face complex challenges that, in some cases, may become existential threats. These threats include the impacts of climate change (rising temperatures, changes in rainfall); growing competition with other users for water; degradation of watersheds and water quality; management of non-agricultural ecosystem services; and changing market opportunities. IWUAs will be forced to take on new roles which require new skills. The irrigation agency must be prepared to assist IWUAs to develop their capacities to address these issues.

A weakness in many past programs has been a lack of investment in developing and using a monitoring and evaluation (M&E) system in collaboration with the IWUA. We recommend working with the IWUA to develop a participatory M&E system that is useful to the IWUA as well as the implementing agencies and based on easy-to-use indicators co-developed with farmers (see Box 5).

Finally, we strongly recommend that, as facilitators and others design and implement training modules, they make these freely available for use by others. While quite a few training modules have been developed and used in recent decades, most are not documented and widely shared. Sharing training and other useful materials more broadly over time would strengthen the effectiveness of programs to support IWUAs.

BOX 5. MONITORING AND EVALUATION (M&E) OF IWUAS.

A major weakness in past programs aimed at establishing or strengthening IWUAs has been the absence of a framework and practical methodology for M&E. While there are numerous indicators that can be used for the M&E of irrigation scheme performance, there are no universally applicable indicators or methodologies for the M&E of the performance of IWUAs themselves. Outcomes and impacts that could be monitored include the following: (i) livelihood and productivity-related impacts; (ii) equity, reliability and adequacy of water supply; (iii) sustainability and manageability of the O&M system of the scheme; (iv) financial viability and effectiveness of IWUA; (v) gender-disaggregated level of member participation; (vi) empowerment; and (vii) technical capacity. The M&E system must be simple to implement and include indicators that can be measured easily (even if less precise), and are of interest to the IWUA leadership. The facilitators should work with the IWUA leaders to help establish an M&E system that is useful and that they can implement. Finally, we also recommend implementing a baseline survey before the project is implemented to collect data on livelihoods, productivity and equity. This will enable credible assessments of the impact of the irrigation investment.

Annotated List of Useful Resources

Note: This list is not exhaustive; additional references can be found in some of the sources listed here. However, these references may be useful sources of additional information. It is organized around the headings of this Guide, though most are relevant to more than one section.

Introduction

Aarnoudse, E.; Closas, A.; Lefore, N. 2018. *Water user associations: A review of approaches and alternative management options for Sub-Saharan Africa.* Colombo, Sri Lanka: International Water Management Institute (IWMI). 77p. (IWMI Working Paper 180). doi: 10.5337/2018.210. http://www.iwmi.cgiar.org/Publications/Working_Papers/working/wor180.pdf

This is a fairly comprehensive review of the literature on IWUAs, using a systematic framework. After a brief discussion of the history of the IWUA concept, it focuses on sub-Saharan African WUA experiences, where most IWUAs have not performed as well as expected. The paper analyzes some of the reasons for this and concludes with a discussion of "alternative management options."

Ghazouani, W.; Molle, F.; Rap, E. 2012. *Water Users Associations in the NEN (Near East and North Africa) Region: IFAD interventions and overall dynamics*. Project report submitted to IFAD by IWMI. Colombo, Sri Lanka: International Water Management Institute (IWMI). 153p. www.un.org/waterforlifedecade/water_cooperation_2013/pdf/water_users_associations_in_nen_region.pdf

This is a systematic review of experiences with and performance of IWUAs in the Near East and North Africa (NEN) region. It also concludes that IWUAs are not active and performing as expected, and participation is largely "cosmetic." It provides specific recommendations regarding the need for better documentation, and the contextual and policy framework required for success (with some unexpected findings, for example, regarding legal frameworks). Like other studies, it argues strongly against "social engineering" approaches.

IWMI (International Water Management Institute). 2011. *Water User's Associations in the context of smallholder agriculture: A systematic review of IFAD funded Water Users Association in Asia*. Submitted to the International Fund for Agricultural Development (IFAD) by the International Water Management Institute (IWMI), October 2011. www.un.org/waterforlifedecade/water_cooperation_2013/pdf/wuas_and_small_holder_agriculture.pdf

This is a systematic review of IFAD's experiences with IWUAs in Asia, drawing largely on IFAD project documentation. Consistent with other surveys, it finds that, in most cases, IWUAs have not performed as well as expected, but analyzing the reasons is hampered by the quality of project documentation. Its most robust conclusion is that imposing "blue-print", "one-size-fits-all" institutional models will not fix the complex and diverse management problems of irrigation systems.

Merrey, D.J.; Cook, S. 2012. Fostering institutional creativity at multiple levels: Towards facilitated institutional bricolage. *Water Alternatives* 5(1): 1-19. http://www.water-alternatives.org/index.php/alldoc/articles/vol5/v5issue1/154-a5-1-1/file.

This paper argues against "blueprint" or "social engineering" approaches to encouraging water management institutions, and explains the creative facilitated approach ("institutional *bricolage*") advocated by this Guide.

Merrey, D.J. Forthcoming. *Will 21st century water user associations do better than in the 20th century? New approaches needed to support farmer-led collective management of irrigation.* Paper presented at the 8th Regional ICID Conference, Kathmandu, Nepal, May 2-4, 2018 (forthcoming as publication).

This paper reviews experiences with IWUAs since the late 1970s, identifies key lessons from these experiences, and proposes five principles for IWUAs in the twenty-first century. IWUAs will face even greater challenges in the future as a result of the impacts of climate change, growing competition for water, and rising demand for food.

The Social, Technological and Environmental Pathways to Sustainability (STEPS) Center website: New insights in navigating complexity in development (https://steps-centre.org/blog/new-insights-navigating-complexity-development/).

This website explores development as a process of nurturing change in complex adaptive social systems. Development cannot be managed as a top-down process; rather, self-organization needs to be nurtured and facilitated.

Vermillion, D.L.; Sagardoy, J.A. 1999. *Transfer of irrigation management services: Guidelines*. FAO Irrigation and Drainage Paper 58. Food and Agriculture Organization of the United Nations (FAO), International Water Management Institute (IWMI), and Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ). Rome, Italy: Food and Agriculture Organization of the United Nations (FAO). http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/4183/Transfer-of-irrigation-management-services.pdf?sequence=1&isAllowed=y.

Although now nearly 20 years old, this paper remains a classic explanation of the range of policies and strategies most likely to lead to successful transfer of irrigation management responsibilities to farmer organizations.

Step 1: Understanding the Policy, Social and Institutional Context

IFAD Tools and guidelines (https://www.ifad.org/web/knowledge/tools).

Many of the tools, how-to guides and "lessons learned" documents on this website are very useful and relevant to promoting IWUAs. Examples include the following:

A field practitioner's guide: Institutional and organizational analysis and capacity strengthening (2014) -

https://www.ifad.org/documents/38714170/39144386/A+field+practitioner%27s+guide+-+Institutional+and+organizational+analysis+and+capacity+strengthening.pdf/48466eeb-244e-4f3b-a67d-f587ebf75038

Lessons learned: Strengthening smallholder institutions and organizations (2014) - https://www.ifad.org/documents/38714170/39144386/A+field+practitioner%27s+guide+-+Institutional+and+organizational+analysis+and+capacity+strengthening.pdf/48466eeb-244e-4f3b-a67d-f587ebf75038

Lessons learned: Strengthening smallholder institutions and organizations (2014) - https://www.ifad.org/documents/38714170/40184028/ngthening+smallholder+institutions+and+organizations.pdf/51f2b377-0286-42e5-aada-9beef9d21783

How to do: Engaging with farmers' organizations for more effective smallholder development (2017) - https://www.ifad.org/documents/38714170/40309250/HTDN_FO_web.pdf/0454268f-8aca-4f12-86df-f1eb8e78effd

Meinzen-Dick, R. 2007. Beyond panaceas in water institutions. *PNAS* 104(39): 15200-15205. https://doi.org/10.1073/pnas.0702296104

Similar to the paper by Ostrom (2007), this paper argues against trying to identify universally applicable institutions for managing irrigation water.

Multiple Use water Services (MUS): https://www.musgroup.net/

This site contains a wealth of material, tools, and guidelines for planning and developing multiple use water systems.

Ostrom, E. 2007. A diagnostic approach for going beyond panaceas. *PNAS* 104(39): 15181-15187. https://doi.org/10.1073/pnas.0702288104

A classic article offering a framework for analysis of complex socio-ecological systems. The paper argues against universal solutions or panaceas because these systems are complex, multivariable, nonlinear, cross-scale, and constantly changing.

Step 2: Initiating the IWUA Process

Lefore, N.; Weight, E.; Rubin, D. 2017. *Gender in irrigation learning and improvement tool*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 40p. doi: 10.5337/2017.203. http://www.iwmi.cgiar.org/Publications/Other/training_materials/gender_in_irrigation_learning_and_improvement_tool.pdf

This tool can facilitate learning and support equitable standards by collecting feedback and ideas for specific actions that scheme management can take to address gender inequities. It consists of a series of indicators clustered around three critical themes in gender and irrigation, with supporting discussion questions and an adaptable scoring system, which are also included in the document.

Step 3: Developing the IWUA Roles and Governance Arrangements

IWMI (International Water Management Institute); SIC ICWC (Scientific Information Center, Interstate Commission for Water Coordination). 2003. *How to establish a Water Users Association? Practical steps for social mobilizers.* Tashkent, Uzbekistan: International Water Management Institute (IWMI); Tashkent, Uzbekistan: Scientific Information Center, Interstate Commission for Water Coordination (SIC ICWC). http://www.iwmi.cgiar.org/regional-content/central_asia/pdf/wua_eng.pdf

This is a detailed handbook for organizing IWUAs in the legal and social context of Tajikistan. It is far more prescriptive than what this Guide recommends, but reflects the reality of irrigation programs in that country.

Lempériere, P.; Hagos, F.; Lefore, N.; Haileslassie, A.; Langan, S. 2014. *Establishing and strengthening irrigation water users associations (IWUAs) in Ethiopia: A manual for trainers*. Colombo, Sri Lanka: International Water Management Institute (IWMI). 76p. doi: 10.5337/2014.232. http://www.iwmi.cgiar.org/Publications/Other/training_materials/establishing_and_strengthening_irrigation_water_users_associations_in_ethiopia.pdf

This manual provides guidance for establishing IWUAs consistent with an Ethiopian government legal proclamation on water users' associations. Although somewhat more prescriptive than what this Guide recommends, it offers detailed suggestions on training that can be adapted to other contexts.

van Rooyen, A.F.; Ramshaw, P.; Moyo, M.; Stirzaker, R.; Bjornlund, H. 2017. Theory and application of Agricultural Innovation Platforms for improved irrigation scheme management in Southern Africa. *International Journal of Water Resources Development* 33(5): 804-823. https://doi.org/10.1080/07900627.2017.1321530

This article reports on using Agricultural Innovation Platforms to create an environment in which irrigation scheme actors can engage, experiment, learn and build adaptive capacity to increase market-related off-take and move out of poverty.

Step 4: Formal Adoption and Launch of IWUA

Mati, B.M. 2012. *Participatory operation and maintenance of irrigation schemes*. Training Manual 10. Nile Basin Initiative (NBI), Nile Equatorial Lakes Subsidiary Action Programme (NELSAP) – Regional Agricultural and Trade Programme (RATP), Bujumbura, Burundi. http://nileis.nilebasin.org/system/files/PARTICIPATORY%20OPERATION%20AND%20MAINTENANCE%20OF%20IRRIGATION%20SCHEMES%20%2010.pdf

This training manual summarizes guidelines on participatory approaches for the planning, development, operation and maintenance of irrigation schemes, focusing on smallholder group schemes. The manual describes how communities can be mobilized into strong water user groups to manage irrigation systems sustainably. It offers practical suggestions for training to address a variety of important issues.

Step 5: Engagement with Irrigation Agency to Design and Implement Scheme

Boelens, R.; Vos, J. 2014. Legal pluralism, hydraulic property creation and sustainability: The materialized nature of water rights in user-managed systems. *Current Opinion in Environmental Sustainability* 11: 55-62. https://doi.org/10.1016/j.cosust.2014.10.001

Based on a literature search, this paper examines in detail how the notion of 'hydraulic property creation' in contexts of legal pluralism may support sustainable, self-governed irrigation systems. User investment in hydraulic infrastructure generates collective water property relations, and creates collective and individual water rights in the hydraulic works, triggering collective action. Even well-intended policies and legislation that ignore this practice-based property notion may jeopardize well-functioning systems.

Step 6: Continuation of Support to IWUA after Completion of Construction

Water governance, training and gender in agriculture: A new evidence base - https://www.agrilinks.org/event/training-water-governance-and-gender-agriculture-new-evidence-base

This is a link to a presentation on the effectiveness of long-term training of IWUA members, based on a study in Tajikistan. It has three takeaway messages: (i) for new institutions, a longer period of training is better than short periods of training; (ii) even the best-designed programs must deal with complex local realities; and (iii) traditional and informal forms of governance should also be recognized as important (see also: Balasubramanya, S.; Price, J.P.G.; Horbulyk, T.M. 2018. Impacts assessments without true baselines: Assessing the relative effects of training on the performance of water user associations in Southern Tajikistan. *Water Economics and Policy* 4(3): 1850007. https://doi.org/10.1142/S2382624X18500078

Senanayake, N.; Mukherji, A.; Giordano, M. 2015. Re-visiting what we know about Irrigation Management Transfer: A review of the evidence. *Agricultural Water Management* 149: 175-186. https://doi.org/10.1016/j.agwat.2014.11.004

This is a systematic review of the impacts and performance of programs aimed at transferring irrigation management responsibilities to IWUAs. The overall conclusion is that most studies are so flawed that no conclusive conclusions are possible. The article has a large bibliography and is an excellent source for a review of the nuances emerging from multiple studies.

Van der Schans, M.; Lempérière, P. 2006. *Manual: Participatory rapid diagnosis and action planning for irrigated agricultural systems (PRDA*). International Water Management Institute (IWMI), Food and Agriculture Organization of the United Nations (FAO). Rome: International Programme for Technology and Research in Irrigation and Drainage. Rome: Food and Agriculture Organization of the United Nations (FAO). www.fao.org/tempref/docrep/fao/009/a0489e/a0489e00.pdf

This is a practical manual on how extension officials can work with farmers to diagnose performance issues of irrigation schemes and identify practical solutions.

Pittock, J.; Ramshaw, P.; Bjornlund, H.; Kimaro, E.; Mdemu, M.V.; Moyo, M.; Ndema, S.; van Rooyen, A.; Stirzaker, R.; de Sousa, W. 2018. *Transforming smallholder irrigation schemes in Africa: A guide to help farmers become more profitable and sustainable*. The Australian National University, Canberra. ACIAR Monograph No. 202. Canberra: Australian Centre for International Agricultural Research. 64p. https://www.aciar.gov.au/publication/Transforming-smallholder-irrigation-schemes-Africa

This is a new publication based on several years of detailed research on small, community-managed irrigation schemes in southern Africa. It offers well-grounded suggestions aimed at creating the conditions that will enable smallholders to profit from irrigated agriculture.

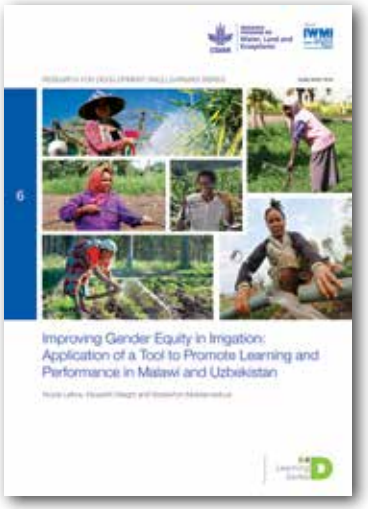
WLE RESEARCH FOR DEVELOPMENT (R4D) LEARNING SERIES

9 How to Support Effective and Inclusive Irrigation Water Users' Associations: A Guide for Practitioners

https://dx.doi.org/10.5337/2018.227

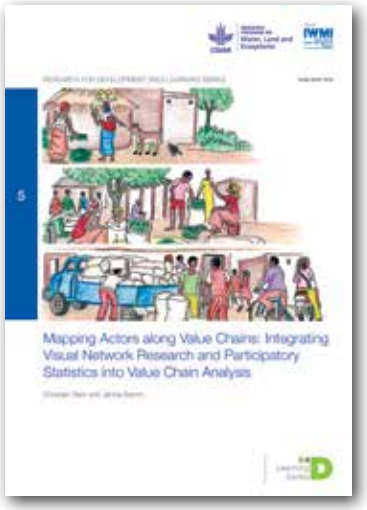
7 Meeting the nutrition and water targets of the Sustainable Development Goals: Achieving progress through linked interventions

https://dx.doi.org/10.5337/2018.221



6 Improving gender equity in irrigation: Application of a tool to promote learning and performance in Malawi and Uzbekistan

https://dx.doi.org/10.5337/2017.217



5 Mapping actors along value chains: Integrating visual network research and participatory statistics into value chain analysis

https://dx.doi.org/10.5337/2017.216

4 Exclosures for ecosystem restoration and economic benefits in Ethiopia: A catalogue of management options

https://dx.doi.org/10.5337/2017.204

3 Gender policies and implementation in agriculture, natural resources and poverty reduction

https://dx.doi.org/10.5337/2015.205

For access to all WLE publications, please visit https://wle.cgiar.org/publications

RESEARCH PROGRAM ON Water, Land and Ecosystems

LED BY: IWMI International Water Management Institute

Photo: Hamish John Appleby / IWMI

About WLE

The **CGIAR Research Program on Water, Land and Ecosystems (WLE)** is a global research-for-development program connecting partners to deliver agriculture solutions that protect our natural resources – and the people who rely on them. WLE brings together 11 CGIAR centers, the UN Food and Agriculture Organization (FAO), the RUAF Foundation, and numerous national, regional and international partners to find integrated solutions. The program promotes an approach to sustainable intensification in which a thriving ecosystem is a prerequisite to agricultural development, food system resilience and human well-being. WLE is led by the International Water Management Institute (IWMI) and partners, and supported by CGIAR, a global research partnership for a food-secure future.

About the Research for Development (R4D) Learning Series

The **WLE Research for Development (R4D) Learning Series** is one of the main publication channels of the program. Papers within the series present new thinking, ideas and perspectives from WLE research with a focus on the implications for development and research into use. Papers are based on finalized research or emerging research results. In both instances, papers are peer-reviewed and findings are based on sound scientific evidence and data, though these might be incomplete at the time of publication.

The series features findings from WLE research that emphasize a healthy functioning ecosystem as being a prerequisite to sustainable intensification, resilience of food systems and human well-being. The series brings together multi-disciplinary research, global synthesis and findings that have implications for development practitioners and decision makers at various levels.

CGIAR Research Program on Water, Land and Ecosystems
International Water Management Institute (IWMI)
127 Sunil Mawatha, Pelawatta
Battaramulla, Sri Lanka
Email: wle@cgiar.org
Website: wle.cgiar.org
Thrive Blog: wle.cgiar.org/thrive

R4D Learning Series

ISSN 2522-7106 (Print)
ISSN 2522-7076 (Online)
ISBN 978-92-9090-878-4

IN PARTNERSHIP WITH:

Bioversity International · CIFOR · CIAT International Center for Tropical Agriculture · CIP International Potato Center · FAO · ICARDA Science for resilient livelihoods in dry areas · ICRISAT International Crops Research Institute for the Semi-Arid Tropics · IFPRI International Food Policy Research Institute · ILRI International Livestock Research Institute · RUAF Foundation · World Agroforestry Centre · WorldFish