

# ICED Evidence Library

## Delivering integrated water resource management in fragile contexts: Guidelines



Tags: Investment, Infrastructure, Programme Design

*Integrated Water Resources Management (IWRM) is a means of addressing water problems driven by competing water demands for scarce and variable water resources. The approach has been used successfully in fragile contexts to manage risk and promote development. During 2018 ICED undertook a review of successful IWRM approaches in Sudan, extracting lessons learnt on how IWRM can be used to manage conflict and climate risk, and support the transition from humanitarian response to developmental intervention. The study produced a series of guidelines, 5 case studies, and a summary guide on the importance of IWRM all of which can be accessed via the ICED website.*

### Main messages:

Integrated Water Resources Management (IWRM) is a means of addressing water problems driven by competing water demands for scarce and variable water resources. The approach works by forming a committee which represents the competing uses and users of water in a Khor or Wadi catchment. By making a joint investigation and analysis of the water problems in the catchment, the committee representatives make a transition from seeing the water problems from competing perspectives to looking at the problems in the catchment as a whole. Then, by working together the committee prioritises water management responses in a way that balances the competing demands and interests of water users from across the catchment.

This approach has been adopted in many parts of Sudan at different scales in different ways. This short booklet reviews lessons learnt on two programmes focusing on rural catchment-based approaches to IWRM in Sudan. We will look at the guidelines that have been used in the programme and at case studies of individual projects.

The guidelines comprise three stages:

1. Preparing and setting up the project: understanding the catchment, understanding the social context, establishing the committee
2. The committee prepares a plan: nine steps addressing group problem analysis, group-work to identify and select and prioritise of interventions
3. Implementation and management

Risk management is an important part of the project. It's important to understand the social, governance and conflict risks before setting up the committee. IWRM is itself a means of addressing water and conflict risks, but these need to be analysed before setting up practices to address these risks.

IWRM is complementary to WASH programming. WASH is a vital lifesaving activity and the first priority in an emergency response. When we look at longer term recovery and development programmes then WASH needs to fit into a wider IWRM approach as domestic water supply is only one of a number of competing needs for water for longer term development. However, if the humanitarian response is longer term than an immediate emergency, then IWRM is a means of addressing the livelihood and environmental risks of a protracted humanitarian crisis.

### Guidelines:

#### First stage: understanding, sensitisation and establishing the committee:

##### 1. Understand the catchment

In selecting an area to work, you will have become aware of water related problems and be seeking to support local groups to find a solution. There are practical concerns about where to work such as location and accessibility. What are the livelihoods and main water demands that are driving the project? Is it water for irrigation? Enhancing rainfed agriculture with water harvesting? Improving domestic use? Improving access of water for livestock and domestic use of herders?

A first step is to identify what the water sources are and how they are recharged. An overall picture is required at first. Is there an aquifer? Is it shallow or deep? Does the aquifer require annual recharge (e.g. in fractured basement complex geology) or has it got extensive storage (such as deeper sandstone aquifers)? If it is a shallow aquifer, is there a large catchment area or wadi that recharges the aquifer? Or is it dependent on recharge from rainfall directly on to the aquifer alone? (these aquifers will be more vulnerable to a year of low rainfall).

In some cases water that fell as rain in wetter higher areas will flow down the wadis and be stored in the sandy wadi beds and recharge the downstream aquifers – this is more reliable than aquifers that are not connected to wadis and therefore depend on direct recharge alone.

How important is surface water? What are the upstream and downstream water uses? Is it used for flood-based farming? What is the role of this water on downstream pasture or flood-based farming?

In case study 2 and 5 the importance of understanding significance of livestock demands on water use is highlighted. In case study 3 and 4, the issues of groundwater recharge and of flooding were prioritised – slowing the flow in the upper catchment addresses both challenges.

## **2. Understand the social and political context**

Stakeholders can be individuals, groups or sub-groups, such as villages, communities, customary and government leaders, line departments and so on. Make sure women are well represented. List all the stakeholders relevant to water.

Primary stakeholders are water users in the catchment. Secondary stakeholders are those with an interest in water and IWRM but their interest is not directly as water users.

When you establish a committee, draw on the experience of those working on similar fields in the area, such as village development committees, health committees, community based natural resources management etc. What are the challenges? What are the success stories? How do you ensure the committee is genuinely representative and gives a good voice to marginalised groups?

Forming the committee comes at a later stage, but at this stage it is important to develop a picture of the social dimensions of the pattern of water use, livelihoods and natural resource use in the catchment. You may want to work with a network of committees, as is done with the Wadi El Ku catchment management project in Darfur.

It is vital to understand the local political and economic interests – the political economy. One way that catchment management projects can fail is that powerful interest groups can grab a disproportionate control of the programme.

This may be an economic group – such as a selection of cash crop growers – or possibly a dominant power structure in a political group. There is no real alternative to seeking trusted local advice and analysing the risks carefully before embarking on the project. Sufficient time and resources need to be allocated to the stakeholder analysis at the beginning of the project. If the situation is complex, then this analysis may take longer than expected. This should not be considered wasted time – in areas at risk of conflict, this stage is where a lot of substantive “peace-building” work is done.

Where situations are particularly complex, and peace-building is a clearly identified an element of the project, then there may be a staged approach of building trust through joint meetings, training and vision building that would be required at this pre-committee formation stage. This stage may last a year or more in complex contexts. The value of this work is significant, for all the tangible results are not as visible as when the committee has been formed and the practical work begins.

Case study 4 describes a project in a complex political context. It is an area that has suffered from conflict and during the course of the work communities re-established contact for the first time in many years. Challenges exist in deciding what interventions to make given the social and political tensions in the area. These tensions need resolving and the project is bringing important issues to light that need to be addressed over time.

## **3. Create the committee**

Committees comprise three groups of people: water users, customary leadership and technical government officers. The water users are selected to be representative of the different livelihoods, communities and locations in the catchment. Water users are the largest group, comprising most of the members to the committee. The inclusion of customary leaders depends on the role that they take in the area. It is important to understand the social context before embarking on the project.

Government line ministries are important to the committee. They are engaged with the technical discussions but not in decision making roles. Government line ministries represented typically comprise: State Water Corporation/Water and Environmental Sanitation project (WES); Groundwater and Wadis Unit; Agriculture; Range and Pasture. The government agencies provide advice corresponding to their technical mandates.

Formation of the committee and the nine steps to produce the catchment plan is illustrated in different ways throughout the case studies, but the overview is given in more breadth in case study 4. Case study 2 involves work with a pre-existing committee.

The case studies vary in the role of traditional leadership as this issue varies as their role in society varies from one context to another. In case studies 1 and 3 amplifying the voice of women was important. Case study 1 highlights how both the government and the NGO have empowered the committee as the contact point on water problems for people within the catchment. This approach gives a strong sense of local ownership of water management.

## **Second stage: the committee makes a catchment plan**

### **1. Remote sensing, hydrological analysis and data collection**

It is time to put numbers, as far as you are able, to the information on flows that you have identified. By teaming up with a technical partner and drawing on remote sensing data a useful, numerical picture of the catchment and of water use may be obtained.

### **2. Getting a more detailed overview of the situation**

Draw on a wide range of participatory rural appraisal methods such as community mapping, problem trees etc. You may choose to ask groups of men and women to produce maps independently to explore different perspectives on water problems in the catchment.

When you are doing joint mapping with pastoralists and farmers remember that the process matters as much as the outcome – the aim is to enable a shared vision to emerge amongst the participants and communities. Consider normal and dry years, and other risks such as floods. What are the hotspots of tension in shared resource use? How do the livelihoods relate to the resources that the participants have drawn on the map?

### **3. On site follow up and collective problem analysis**

Working with your committee or committees, visit different parts of the catchment and discuss specific issues in details with communities affected. This step is a turning point for the understanding of the catchment. At this point there is a change of perspective for the committee members who no longer only see their own competing water problems, but begin to see the problems of the water catchment as a whole. This transition from competing individual perspectives to a collective perspective is the heart of the IWRM process.

Case study 4 shows how problems can be interrelated. All the case studies are built on the fact that the committee has adopted a collective, catchment wide perspective.

### **4. Joint identification and assessment of potential solutions**

Make a long list of potential interventions and consider their relative merits. Consider different scenarios and the impacts on different water user groups. Consider livelihood, domestic, cultural impacts. Creativity is important here – there may be new approaches that are key but not trialed in the area before – such as sand dams. Case studies four and five show longer lists of project interventions.

### **5. Collective analysis of options and decision making**

Having analysed all the options, the committee makes a first draft of the list of interventions for inclusion in the catchment management plan. Management and maintenance of the interventions needs to be considered throughout the planning process.

### **6. Prioritise and plan**

The actions are budgeted and prioritised. When all of the interventions within the catchment are put together, prioritised and costed, then it becomes a draft catchment plan. Implementing a balanced financial plan is an important element of the project sustainability. Cost recovery and maintenance are the focus of this plan.

Case study 4 shows how interventions work together for multiple problems. See case study 2 for a pledge-based system for funding maintenance. The local ownership of this arrangement is critical to its success.

## **7. Feedback from stakeholder communities**

The draft plan is taken to different groups of stakeholders and reviewed. This is an important stage to ensure that the programme is fair to all users and there is collective adoption of the plan.

## **8. Approval of the plan**

The catchment committee will review and approve the plan. In different areas the nature of the relationship with the government and customary leaders will vary. The aim is to keep on good terms with both but to enable water user groups to make decisions. Establishing the independence of the committee is important to building trust amongst the different groups of water users. It is this trust building exercise that enables real progress on collaboration between different communities for water use. But this needs mutual trust with customary and government authorities too. Transparency helps all these relationships of trust. And to capitalise on that trust it is now time for the project to deliver some results!

## **9. Communication and liaison**

Ongoing communication and liaison with the relevant authorities needs to be maintained. Public awareness with posters and signboards is part of a good communication strategy. Technical information such as groundwater monitoring is provided to the appropriate organisations such as Groundwater and Wadis Unit and water quality monitoring to WES.

### **Third stage: Ongoing management**

#### **1. Implementation**

The interventions are made, with contributions from the community in cash and labour according to arrangements established by the committee.

#### **2. Follow-up, monitoring and evaluation**

Recalling that IWRM is a process not a destination, the committee is involved in ongoing monitoring of the project and in the modification of the plan as required with feedback from the water users.

A specific project evaluation should be undertaken during the implementation period so as to be able to learn lessons for subsequent programmes. The committees should be consulted and informed throughout. Case study 5 shows how problem analysis and interventions progress over the course of the project – the catchment plan is a live document that is updated and revised over time.

#### **3. Ongoing training and capacity building**

An ongoing programme should be made to enhance the skills and capacity of the committee and other stakeholders such as government interlocutors. It is good to do this collectively so as to strengthen the collective understanding of the committee. It is also good to bring in other participants, such as the State Water Corporation with whom the committee interacts to enable links with other organisations and build the capacity for this kind of initiative to be taken up more broadly. Exchange visits to other catchment management schemes in Sudan may be important group learning opportunities.

Specific training for specific activities, such as book-keeping, may be required. In these cases it is still best to provide training to more than one individual so that there is a collaborative approach to implementing the new skills as soon as the course has been completed.

### **Risk management**

These are some of the key risks to identify and keep track of during the project. Some ways of mitigating and managing the risks are provided too.

#### **Risk of project capture by powerful actors**

If a group of strong actors – perhaps a group of cash-crop cultivators or a group of traditional or local authority strongmen – takes control of a project committee then the benefits of collective decision making will be lost. It's important to address this risk very carefully before forming the committee. Local advice from people who know the communities and the local politics is essential.

**Risk of failing water resources**

Some projects fail because the water runs dry. A qualified hydrologist is needed to assess the water resource potential of your project area.

**Risk of failing interventions**

A recurring problem with water resource programmes is that technical interventions fail. Dams may be poorly built or boreholes may run dry. In each case the risk can be reduced by ensuring that genuine technical expertise is obtained to design and implement the project. Engineers and hydrologists are roles that can't be substituted by non-specialists.

**Risk of poor local ownership**

Many aid projects in the water sector do not receive the ongoing maintenance they require because local committees do not have a genuine sense of ownership of the projects undertaken. Consequently if an NGO provides the infrastructure it is often seen as the NGO's responsibility to maintain it. Empowering the committee to be the real decision maker has potential to provide real ownership of local assets, which brings a new perspective on responsibilities for maintenance – as some of the case studies have shown.

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