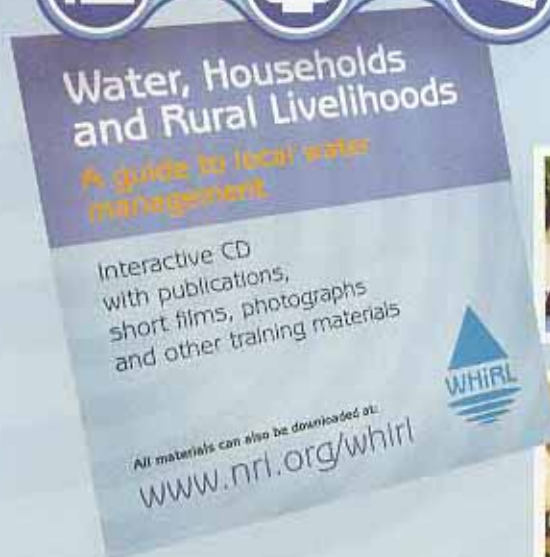
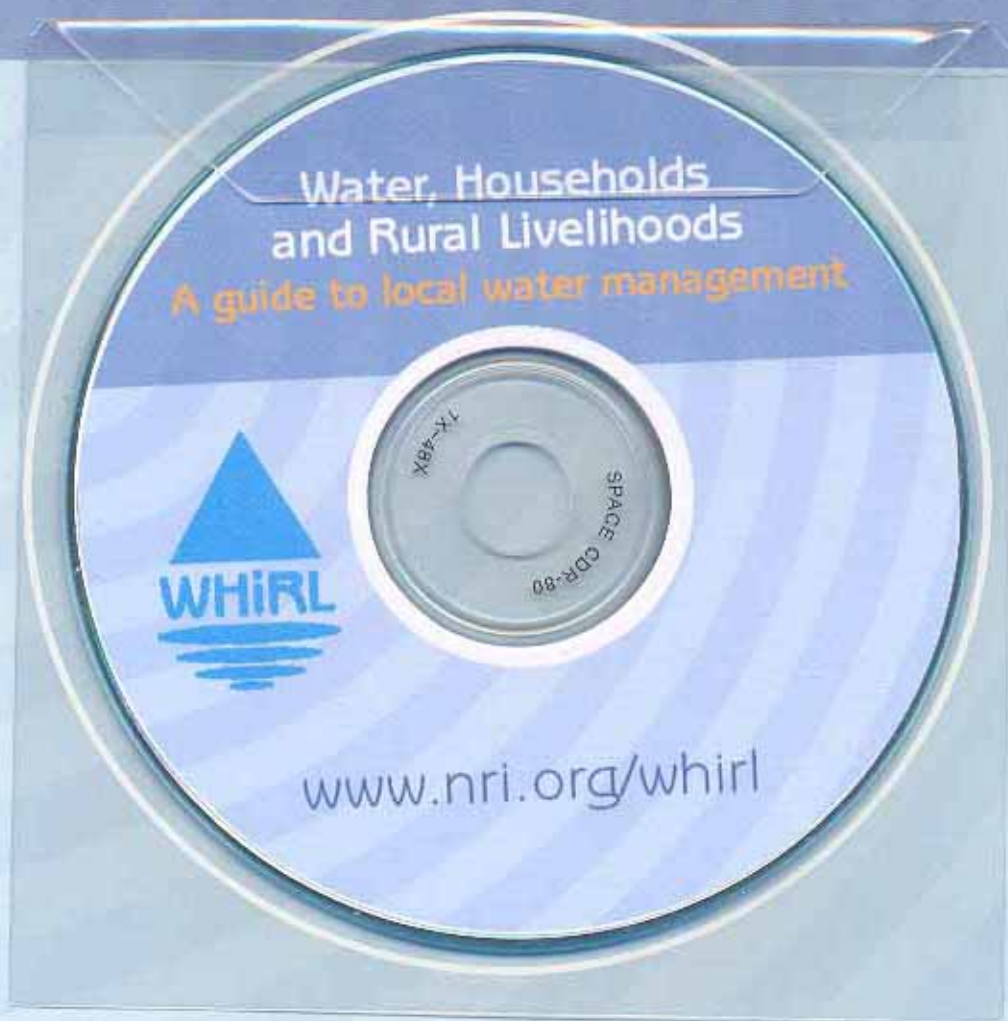


# Water, Households and Rural Livelihoods

## A guide to local water management

Includes interactive CD with publications,  
short films, photographs and other  
training materials





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# Introduction

**Integrated Water Resources Management (IWRM)** has been widely accepted as a fundamental approach in dealing with the 'water crisis': a crisis of water governance and mismanagement.

**Implementation** of IWRM is a huge challenge and is fraught with political, economic, and practical problems. Solutions are urgently needed to encourage effective implementation.

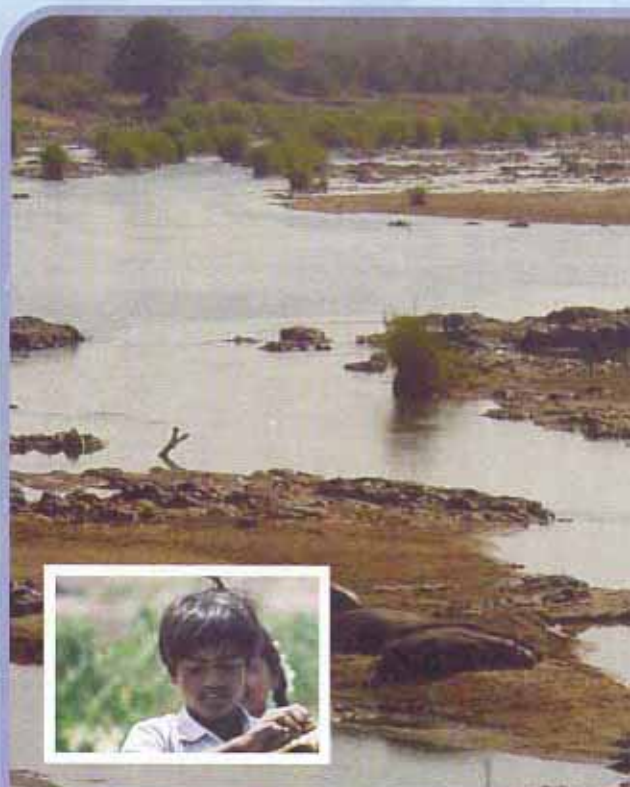
We believe that linkages between IWRM and the **water and sanitation (WATSAN)** sector have been neglected to date, and that these need to be strengthened. Everyone needs water and sanitation services, and building on grassroots needs is an effective way to operationalise IWRM – not least because a "bottom up" approach is pro-poor.

Novel approaches to implementing IWRM that included provision of water supplies for both domestic and productive purposes were developed and tested through action research as part of the **Water, Households and Rural Livelihoods (WHiRL)** project in India and South Africa.

The booklet includes highlights of the lessons learnt, and introduces the materials that can be found on the accompanying **interactive CD**.

## **Integrated Water Resources Management (IWRM)**

IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2000)



## The WHiRL project

The Water, Households and Rural Livelihoods (WHiRL) project undertook action research from 2000 to 2004 to develop and support innovative approaches to IWRM in two very different contexts.

In **India**, local competition between different users of scarce groundwater is a major and increasing problem. Use of water for irrigation often compromises the amount and/or quality of groundwater available for domestic supply in villages. Although there is a large and dynamic micro-watershed development programme focused on water harvesting and rural development, and this model has been widely replicated in states such as Andhra Pradesh, projects have largely focused on promoting irrigation, and have neglected domestic water supply issues. We believed that watershed development projects offer a potential entry point to improve groundwater management and protect water supply needs.



In **South Africa**, exciting water resources management and water services reforms started in the 1990s, based on innovative new legislation. Research here sought to understand and support practical implementation of these new policies, which included key concepts such as the Basic Human Needs Reserve introduced to safeguard sufficient water resources for basic domestic uses. In ensuring access to an equitable share of water resources for people and the environment, we believed that some opportunities were being missed, because the South African policy framework gave insufficient attention to important productive uses that people make of local and domestic water supplies. Improved access to relatively small volumes of water for productive purposes has the potential to contribute to poverty alleviation.

The two focus countries offered scope for sharing important lessons that have been learnt in recent years. For example, could India learn from some of the innovative concepts in South African legislation such as the Basic Human Needs Reserve? And could South Africa learn from the extensive watershed development programmes in India, and the recent history of groundwater development, to increase access by the poor to water for domestic and productive uses?

The following section highlights some of the main findings of the research, and especially methodologies that you can adapt and use in your work.



## Some findings from research in India

Anantapur is the driest and most drought-prone district in the state of Andhra Pradesh, southern India. Groundwater resources are increasingly important for both irrigated agriculture and domestic water supply, although the area has a long history of surface water resources development. The WHiRL project focused on four villages where groundwater is being heavily exploited, leading to impacts on domestic water consumers and irrigation farmers, and where watershed development projects were planned or under way. In each of the villages, watershed development programmes had not prioritised either protection of domestic water supplies or demand management, and these issues formed the focus for action research.

Over a period of two years, the NGO Accion Fraterna worked with the Andhra Pradesh Rural Livelihoods Programme and the District Water Management Agency to pilot an alternative approach to watershed development. In each village, a wider range of water-related options was considered than is normal practice, especially options related to improving domestic water supplies. Interventions were piloted based on new methodologies and tools developed and tested by the project.

### Some WHiRL-tested methodologies that you can try

- Assessment methodologies to estimate runoff and assess the impacts of water-harvesting structures and participatory fluoride survey techniques
- Planning methodologies, including a Project Management Cycle approach to improve watershed development projects and in particular to help selection of better interventions
- Monitoring & evaluation methods for user-based assessment of water supply performance and to facilitate quantitative analysis of qualitative data



Key findings were that:

- It is possible to tackle domestic water needs successfully in a watershed development context. In the four villages, 600 households and 3,400 people now have improved water supply systems, including access to safe drinking water in two villages that previously suffered severe fluoride problems.
- A wider range of physical interventions such as piped systems, adding gates to check dams, roof-top harvesting, kitchen gardens and cattle troughs can all help provide better access for the poor to water, and should be considered in watershed development programmes. The key to success, however, is to take a problem-focused approach, in which activities and interventions are matched to specific needs and opportunities.
- Interventions need to be based on better planning and awareness raising at appropriate levels. One-size-fits-all solutions rarely work and some interventions – like check dams – can create new problems for downstream water users. Awareness raising and social interventions require as much investment as physical works, and the ‘software’ inputs needed to promote better resource management are easily underestimated.

### Example: Finding local solutions

The village of Battuvani Palli provided a good example of how the problem of fluoride in drinking water can be solved through local action at the watershed scale. Villagers were suffering severe health problems because their water supply contained more than 4 ppm fluoride (compared with a permissible limit of 1.5 ppm). Meanwhile good quality water was being used for irrigation of crops. In discussions with the community, a number of possible solutions were identified. The preferred solution was to develop a new source on temple land near the village tank and to improve and protect this source by putting gates in upstream structures that impeded runoff. But the well that was drilled also had a high fluoride content and the community decided to revert to their second option. This was to develop resolutions and legally-binding agreements to connect the village water supply to an agricultural borewell (with good quality water) close to the tank, and for the current user of that source to be compensated.



## Some findings from research in South Africa

The Sand river, in northern South Africa, spans the Drakensberg mountains in its headwaters and a densely populated and impoverished ex-homeland central zone, before finally flowing east through the game reserves and farms around the Kruger National Park into Mozambique. On its journey it is a critical resource for commercial forestry, irrigated agriculture, domestic water users and wildlife. The rapidly growing population is chronically under-served by water supply services. With a growing threat of competition over water resources between upstream and downstream users, plus the challenge of improving water services, the catchment is an excellent case study of many of the pressing water resource-related problems facing South Africa as a whole. The Sand catchment is the site of a national pilot project for integrated catchment management: the Save the Sand Project coordinated by the Association for Water and Rural Development.

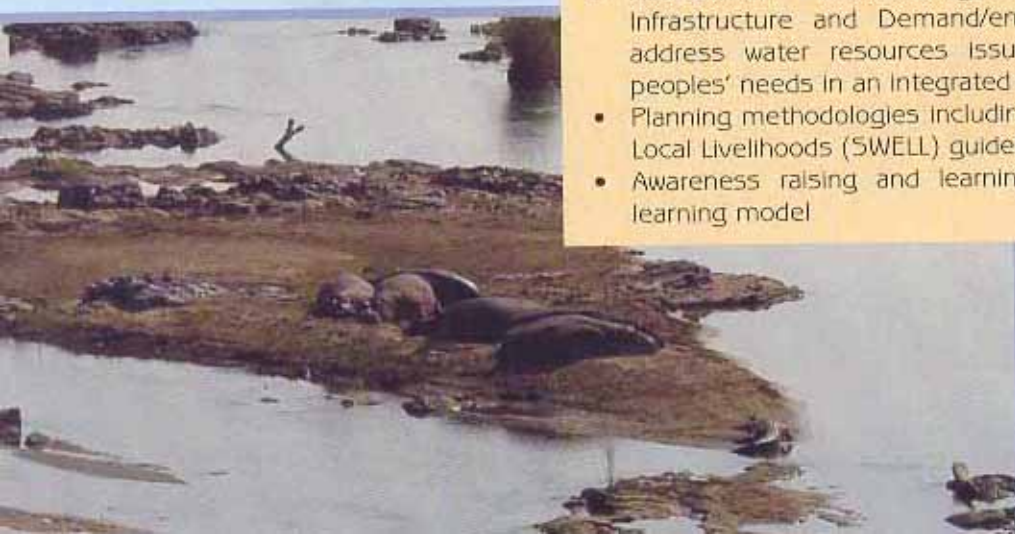
Infrastructure, in the form of the hardware and institutions needed to bring water to people, is the critical element in the Sand linking the water resources with the wide range of users and uses. The Resource, Infrastructure, Demand and Entitlements (RiDe) framework was developed to help understand the practical implications of implementing the Basic Human Needs Reserve for domestic water supply in the catchment and how it must be linked to water service provision.

Use of the RiDe framework highlighted a number of critical issues in the Sand. Key findings were that:

- Failure to meet domestic water supply entitlements is due to poor design and management of infrastructure – not to absolute resource shortage. However, water resources of the catchment are over-allocated if the ecological reserve is to be met;
- Groundwater is a chronically overlooked resource; and
- A planned bulk transfer scheme into the Sand river will have almost no impact on domestic water supply.

### Some WHiRL-tested methodologies that you can try

- Assessment methodologies including the Resources, Infrastructure and Demand/entitlements (RiDe) approach to address water resources issues, water supply systems and peoples' needs in an integrated way
- Planning methodologies including the Securing Water to Enhance Local Livelihoods (SWELL) guidelines
- Awareness raising and learning models based on the Spiral learning model





The project also developed and successfully piloted learning methodologies to enhance the capacity of stakeholder groups (such as local government and village water committees) to engage with the new national water laws and to participate in the water allocation and licensing process, as set out in the legislation. The focus of the learning materials was on achieving water security for rural water supply and making use of the outputs of analysis and problem solving at the catchment scale.

At village level, the research piloted new approaches to planning to help bridge the gaps between the irrigation and domestic sectors in rural water supply. This is vital in a catchment where small-scale productive water uses like backyard gardening, watering livestock and micro-enterprises contribute to livelihoods by generating income, producing food and saving expenditure.

### **Example: Beyond domestic**

In 2003, WHiRL organised a symposium on Poverty and Productive Uses of Water at the Household Level in Johannesburg, South Africa. The symposium provided a forum for sharing experience and ideas about how small-scale productive uses of water at the household level can be better catered for within rural water supply programmes. Case studies from India, South Africa and 10 other countries illustrated how such activities can contribute to livelihoods but are often ignored. South Africa adopted many key recommendations from the symposium in an innovative new Water Services Strategic Framework.



The main outputs part of the CD is arranged as a matrix. You can read about the context where we worked, follow examples (case processes) and find descriptions of useful methodologies for multiple levels in South Africa and India. Each cell of the matrix includes a short summary with links to annexes where you can read more.

	Context	Case processes	Methodologies	Summary
Introduction				
<b>India</b>				
State				
District				
Village				
<b>South Africa</b>				
National				
Catchment				
Village				
Comparisons				
Concluding discussions				
Annexes				

Where we worked

What we found

Methodologies you can use

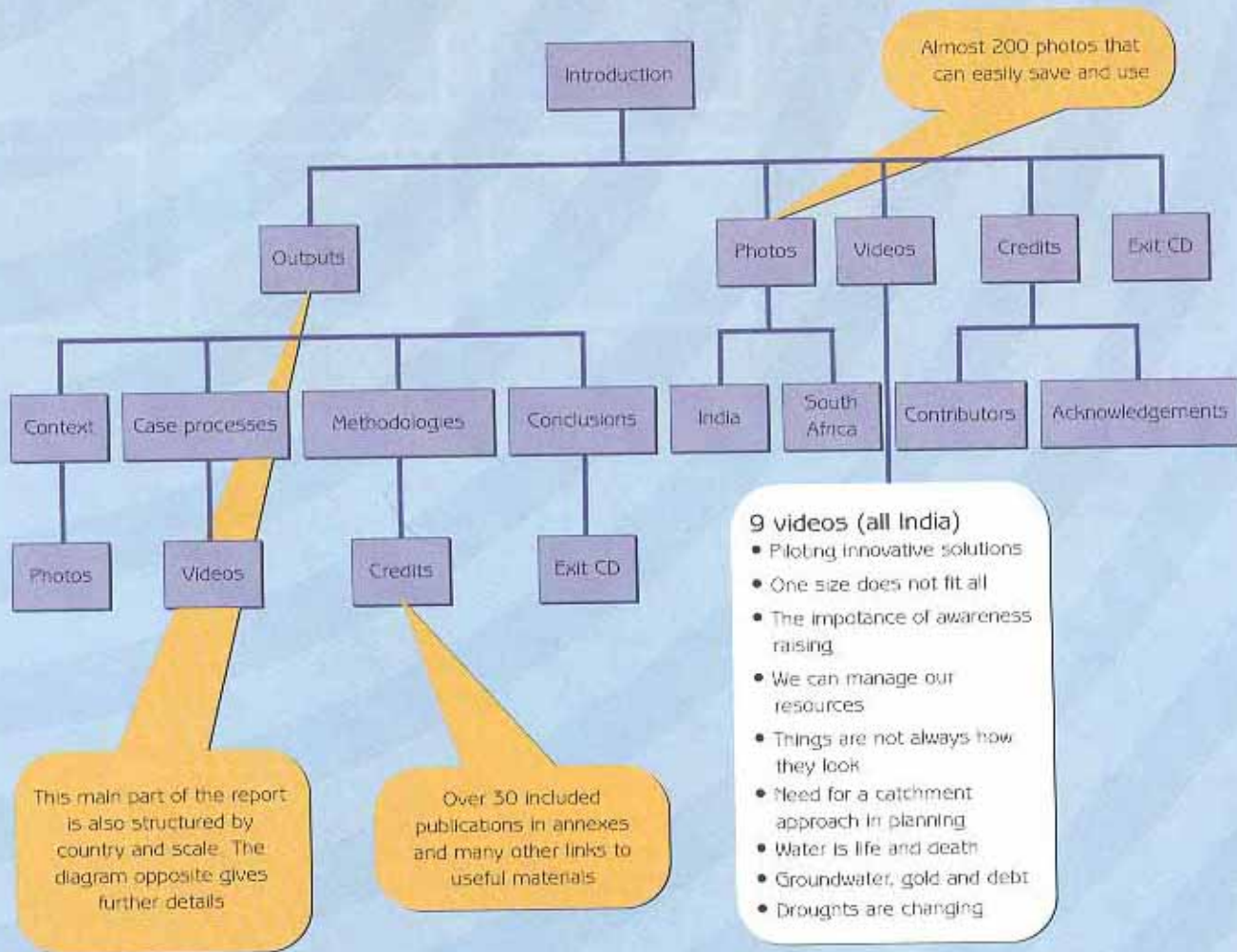
We believe scale is vital in implementing IWRM, and there is always a tension between physical and administrative boundaries. In India documentation is focused on these 3 scales

Three different but broadly comparable scales were identified in South Africa

Each cell includes a summary and links to further information

# Finding your way around the interactive CD

The accompanying CD includes one main section for written material (outputs) that includes short summary papers from the WHIRL project. Links are included to more extensive published documents included in the annexes and to other sources and materials. You can view or print these documents from the CD. Additional resources included are photos and short video films.



**Water, Households and Rural Livelihoods: a guide to local water management** is targeted at water sector professionals who are actively engaged in the implementation of 'Integrated Water Resources Management' (IWRM). The main focus is on local opportunities and actions to secure and build upon the universal needs of people for household water supplies.

The interactive CD provides a practical guide to local-level water resources management issues with a focus on semi-arid countries, tackling poverty, rural water supply, and how the IWRM approach can be put into practice at different scales. It is based on findings from a research project undertaken between 2000 and 2004 in India and South Africa. These are both countries where successful implementation of IWRM will be vital to ensure safe and fair access to water resources over coming decades.

The CD includes tested tools and methods, case studies, short films, publications, photographs and other training materials. It is a valuable resource for practitioners and trainers working in water management and rural development.

All materials can also be downloaded at:

[www.nri.org/whirl](http://www.nri.org/whirl)

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IRC International Water and Sanitation Centre  
Publications Department  
PO Box 2869  
2601 Delft  
The Netherlands  
Tel: +31 (0)15 2192971  
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