Natural Resources Institute

AWARD

Water Resources Management Ltd

Accion Fraterna

BAIF

Water, Households and Rural Livelihoods (WHIRL)

Promoting access of the poor to sustainable water supplies for domestic and productive uses in areas of water scarcity

Inception report

March 2001

This project is supported by the UK Department for International Development (DFID) through the Infrastructure and Urban Development Division's Knowledge and Research programme. Project R7804 'Integrating drinking water needs in watershed projects'.

Table of Contents

Executive summary

Improved access to water supply and sanitation is amongst the most pressing needs of poor people in all developing countries. Domestic water supplies and environmental sanitation contribute to livelihoods in a wide range of ways. They are crucial to health and well-being, and can make an important contribution to food production and income generating activities. But as demand for water rises due to increasing populations, expansion of irrigated areas, and industrial development, many parts of the developing world face increasing water scarcity and pollution risks. Continued reliance upon the traditional approaches to water resources development – such as construction of dams and exploitation of new aquifers to increase supply – is often no longer an option. Demand management and improved allocation of existing resources is increasingly recognised as a more sustainable strategy.

This report describes the inception phase activities carried out between July 2000 and March 2001 for the collaborative Indo-South African-UK research project 'Water, Households and Rural Livelihoods' (WHIRL). This project aims to develop and promote improved and more integrated approaches to address water supply and management problems in areas of water scarcity through collaborative research between partners and development projects in India and South Africa. The project will research innovative institutional and operational strategies that bridge the existing gap between water supply, water resources management at an appropriate scale (e.g. watershed or catchment) and efforts to improve livelihoods of poor people through improved water supply and associated activities.

During the inception phase, tasks have included the development and modification of the project design with stakeholders and collaborators, development of partnerships to undertake fieldwork with appropriate development projects and planning with project partners. Activities have included consultations and visits in India and South Africa to identify demand and prioritise research issues, an inception workshop bringing together participants from both countries, and consultations in Kenya and Tanzania to identify some of the issues associated with uptake of the research findings elsewhere in sub-Saharan Africa.

The project has been approved and strongly supported by government and appropriate organisations in both India and South Africa. In India, the project will work closely with the Andhra Pradesh Rural Livelihoods Project implemented through Andhra Pradesh state-government structures, and World Bank-supported water supply and sanitation projects. In South Africa, action research will be linked to the government-supported Save-the-Sand Project being implemented in the Northern Province, and integrated water resources management initiatives in the region by the Department of Water Affairs and Forestry. South-south collaboration and development of local research capacity through the research are considered to be a key element of the project, and will be facilitated through regular study visits, exchanges and workshops.

The full project team is now in place to undertake the research and activities are well underway in both India and South Africa. In India, work in Andhra Pradesh is being carried out with the NGO Accion Fraterna, building upon the assessment and planning activities of the Andhra Pradesh Rural Livelihoods Project and a major workshop is planned for 5-14 May 2001. In South Africa, research activities are being led by the Association of Water and Rural Development, working with local partners and the Department for Water Affairs and Forestry. Local inputs are supported by multi-disciplinary inputs from the Natural Resources Institute, University of Leeds and Water Resources Management Limited.

1 Introduction

This report describes the inception phase activities carried out under Project R7804 'Integrating drinking water needs in watershed projects' between July 2000 and March 2001. A new long title that reflects the project activities is subsequently used throughout this document:

Water, Households and Rural Livelihoods (WHIRL): Promoting access of the poor to sustainable water supplies for domestic and productive uses in areas of water scarcity

The inception phase activities of the project aimed to meet the following milestones:

- acceptance of the project by key stakeholders, and sense of ownership developed among collaborators, key government departments and target institutions (especially NGOs), leading to an agreed logical framework and working principles.
- project linkages developed and sites selected for fieldwork.
- full project team in place.

This inception report was originally to have been completed by 31 December 2000. However, submission was postponed owing to delays in the issuing of revised contracts and illness of a key staff member. Submission of an agreed report was further delayed to provide additional time requested by the South African Department of Water Affairs and Forestry for internal consultations.

1.1 Background

India and South Africa were identified as target countries for this research because:

- similar problems are faced in dryland areas in the two countries (e.g. there is increasing competition for scarce water resources).
- there is an urgent need to address water supply and sanitation (WSS) issues as part of any strategy to alleviate poverty in both countries.
- complementarities exist between experiences and approaches in India and South Africa. These include: strengths in local-level rural development and long experience of watershed development in India, and new legal and regulatory frameworks and experience of effective management of water resources at the catchment scale in South Africa.

The project aims to:

- to compare and contrast approaches to water supply (especially water resource aspects) and watershed or catchment management being adopted in India and South Africa,
- to focus on identifying which approaches work and why in a realistic and critical manner through participatory action research,
- to facilitate south-south interactions, joint learning, knowledge generation and research capacity building through the research.

Work is based upon 4 components:

- Inception phase
- Review component
- Action research phase
- Development and dissemination of planning tools and guidelines

The action research will be carried out in collaboration with large development-orientated projects in India and South Africa. Partnerships with these projects provide a number of advantages: additional capacity, infrastructure and a means of scaling up successful findings for example.

2 Goal, purpose and outputs of the project

The goal of the project is improved water resources management.

The project aims to contribute to improving water resources management in support of the livelihoods of poor people. Improved access to water is amongst the most pressing needs of poor people in most developing countries. Basic levels of water supply are crucial to health and well-being, and productive uses of water make an essential contribution to food security and income generating activities.

As demand for water rises due to increasing populations, expansion of irrigated areas, and industrial development, many parts of the developing world face increasing water scarcity. Continued reliance upon the traditional approaches to water resources development – such as construction of dams and exploitation of new aquifers to increase supply – is often no longer an option. Demand management and improved allocation of existing resources is increasingly recognised as a more sustainable strategy.

The need for a new approach is reflected in the increasing adoption of Integrated Water Resources Management (IWRM) principles as a guiding framework. IWRM embraces the integrated management of land and all aspects of the water cycle for the sustainable benefit of humans and the environment. In Vision 21 the water and sanitation community signalled acceptance of the IWRM paradigm while asserting that access to an essential minimum (quantity and quality) is a fundamental right. As competing uses of water reduce the availability or quality of resources, and raise the cost of future provision of water services, it is increasingly important that the WSS sector play a more active role in IWRM.

The purpose of the project is 'better institutional and operational solutions for water resources management adopted that promote improved access of the rural poor to safe water supplies for consumptive and productive use'.

The project will identify, assess and promote innovative institutional and operational strategies to increase WSS involvement in IWRM. During the inception phase of the project, the resource team sought to confirm:

- the assumption that developing institutional capacities to operationalise better water resources management is the most pressing need rather than for example, a shortage of technical solutions
- the proposed focus on rural rather than urban areas
- the need to focus on productive uses of water as well water supplies for consumptive uses (or basic domestic needs).

Three outputs were identified. Key issues to be addressed during the inception phase in relation to the outputs are summarised below:

Output 1. Assessment of mechanisms, in water-stressed areas (quantity and quality) with competition for water between multiple uses, to promote more sustainable and equitable access for the rural poor to water supplies for consumptive (drinking and other domestic uses) and productive use (inc. small-scale irrigation, livestock, SMEs).

Output 2. Key findings from pilot case studies of outcomes of more integrated and stakeholder-driven management interventions, and synthesis of piloted methodologies for the development of interventions

- to identify locations for participatory action research
- to develop partnerships with development projects

Output 3. Demand-led planning tools developed, validated and disseminated with guidelines for use that promote and support, in appropriate circumstances, the integration of rural water supply and environmental sanitation with watershed development and management

- to identify target institutions, interests and needs in relation to WSS and IWRM
- to initiate development of a dissemination strategy at an early stage in the project cycle

3 Initial findings

3.1 Activities to date

Inception phase activities have focused on consultations and workshops that have sought to further establish the demand for the research and prioritise key research issues, and build partnerships to undertake the work within an appropriate institutional framework. This section describes the main activities that have been undertaken to date including:

- an inception workshop,
- consultations and workshops to assess key research issues and needs in India, South Africa, Kenya and Tanzania,
- development of partnerships focused on the implementation of participatory action research and dissemination of research findings,
- project planning including the finalisation of the detailed work programme and agreement of sub-contracts with research partners,
- commencement of reviews focused on South Africa, India and experiences elsewhere,
- and initial development of tools and guidelines.

3.1.1 Inception workshop

An inception workshop was held from 12-15 September 2000 and brought together South African, Indian and UK researchers for the first time as part of the project. The purpose of the inception workshop was to agree and refine the project work programme with a common understanding of the research issues and the collaborative research process, and to provide an initial opportunity for preliminary validation by some key stakeholders. The workshop involved participants from the Association for Water and Rural Development (AWARD, South Africa), BAIF Development Research Foundation (India), the Natural Resources Institute (NRI, UK), the University of Leeds (UK), Water Resources Management Ltd (UK) and the Department for Water Affairs and Forestry (DWAF, South Africa). It was held over 4 days and comprised:

Day 1 - Introduction
Day 2 - Field visits in the Sand River Catchment, Northern Province and reflections
Day 3 - Working papers and presentations from South Africa by AWARD and DWAF, and on India by BAIF. Refinement of research project objectives.
Day 4 - Detailed project planning, focusing on the inception phase of the project.

The main outcomes of the workshop were:

- familiarisation and appreciation of the team with issues in India and South Africa, and use of a ‘common language’

- agreed and refined project design and work programme, and collaborative research process (i.e. management, communication issues etc.)
- agreed methodologies for stakeholder assessments in South Africa and India and other SSA/south Asian countries
- agreed methodologies for assessment of demand for research and identification of promotion pathways in South Africa and India, and other SSA/south Asian countries
- shortlist of other SSA/south Asian countries for limited project activities
- agreed criteria for selection of sites in India, and shortlist

Outcomes of the workshop have been incorporated in this inception report (a separate internal report of the inception workshop including working papers on South Africa and India is available). One important outcome was agreement that action research in India should focus on the state of Andhra Pradesh. It was agreed that the project should seek to work in partnership with the Andhra Pradesh Rural Livelihoods Project (APRLP) during the action research phase, but should also include review work based upon grassroots experience of watershed development, water management and water supply by BAIF in different states. An action plan was developed for the inception phase of the project leading into reviews and the action research.

3.1.2 Demand assessment in focus countries for the research: India and South Africa

The purpose of demand assessments in India and South Africa was to identify and prioritise research issues with the participation of key target institutions such as local government and government line ministries, and to initiate development of a dissemination strategy for the research findings.

India

In November 2000, consultations were held with various organisations in Andhra Pradesh to discuss the proposed research issues and potential for developing linkages between the research and the Andhra Pradesh Rural Livelihoods Project (APRLP). A summary of the issues discussed is included in Appendix 1. It was the consensus of the persons consulted that:

- water supply problems relating to poor management of water resources are a major issue in southern Andhra Pradesh especially during the summer season and droughts,
- there is a need for research into how water resources can be better allocated and managed and water supplies protected,
- there is a need for an improved understanding of how watershed development interventions may be better targeted to maximise the positive impacts on drinking water supplies and minimise negative impacts e.g. through increased irrigation,
- there would be mutual benefits to be gained by linking the KaR project research with APRLP activities.

Participatory action research in Andhra Pradesh will build upon baseline studies currently being carried out under the APRLP. Two participatory methodologies are being used: water resource audits and WSP's methodology for participatory assessment (MPA). The outcomes of these studies will be utilized to identify specific catchments and communities for the action research phase activities, and will be discussed at a workshop to be held in Andhra Pradesh from 5-14 May 2001 (see announcement included in Appendix 1).

Members of the research team also discussed the research with the Water and Sanitation Programme – South Asia (WSP-SA). WSP-SA expressed strong interest in collaboration and utlisation of the research outputs in support of a new Government of India rural water supply and sanitation programme (see summary and letter in Appendix 1).

South Africa

Prior to the inception workshop held in September, initial consultations and correspondence with key organisations included DFID-SA, and the Department of Water and Forestry (DWAF). In July, a presentation on the proposed research was given to the Save-the-Sand Project (SSP) steering committee meeting. It was agreed that activities fitted well with the SSP activities and that the action research should be carried out in collaboration.

Follow-up demand assessment activities in South Africa were unfortunately delayed due to illness and pressures on staff at AWARD. To avoid further delays, the methodology was modified and an intensive series of meetings and workshops was held during the period 5-12 February 2001. This process included:

- a two-day workshop with AWARD staff focused on prioritisation of possible research themes in the Sand River Catchment,
- a meeting with DWAF regional staff in Mpumulanga and a one-day workshop at DWAF, Pretoria to present and discuss the proposed research focus, to discuss the possible role of DWAF and other organisations, and a dissemination strategy for the project.
- follow-up meetings with the Strategic Environmental Assessment team at DWAF and the Mvula Trust.

The workshop at AWARD drew upon the outcomes of the earlier inception workshop, and was facilitated using a Bayesian Network[1] to grasp the complex interrelationships between livelihoods, water supply and sanitation, and water resources management in the Sand River Catchment (SRC). Use of this technique was facilitated by the IRC International Water and Sanitation Centre, and proved to be a powerful tool in capturing the views of this group of stakeholders.

A summary of these meetings and workshops is included in Appendix 2. The major outcome of these consultations was support for the research in South Africa to focus on two themes:

Theme 1: Promoting productive uses of water - This was agreed as the major theme for a programme of Participatory Action Research (PAR) in the Sand River Catchment (SRC). The theme will promote the sustainable use of water for productive purposes from systems or resources that also support domestic water supply. Project activities under this theme will:

- promote the productive use of water and contribute to improved livelihoods through impacts on food security, and income generating opportunities.
- complement current WSS efforts that focus on improving health (through providing access to a basic level of domestic water supply, sanitation and hygiene awareness) by addressing the potential of productive uses of water to improve the viability of service provision.
- meet a need identified in the Save-the-Sand feasibility study to promote research into the understanding of the water use and economic potential of small-scale economic activities in the catchment.
- address sustainability issues, especially the risks of conflict and inefficiencies through unsustainable development. The theme will complement project activities in India, where the overexploitation of groundwater for productive uses by smallholders has had severe negative impacts on domestic water supply. It is also suggested that only where productive uses of water play an important role in peoples livelihoods will the incentives for large-scale participation in catchment management exist.

[1] The use of Bayesian networks for natural resource management has been developed under DFID KaR project R7137, Integrated planning and management of water resources, led by the UK Centre for Ecology & Hydrology.

The theme will address the use of water for productive purposes from systems or resources that also support domestic water supply. Initial use of the Bayesian Network based upon the views of AWARD staff suggests that the most appropriate entry points or areas for intervention include: supporting catchment management institutions, strengthening local institutions such as local government, water service providers etc., enhancing community skills and capacity and promoting more equitable allocation of water resources. PAR will be carried out with communities and institutions in the SRC. Communities are to be identified following further consultations (including local government) and baseline surveys.

Work under theme one is intended to contribute the major part of the project in South Africa. In addition, a second parallel research theme was also agreed.

Theme 2: Emerging lessons from institutional reform in catchment management in South Africa

This second parallel research theme will concentrate on distilling and disseminating emerging lessons from pilot integrated water resources management projects and the establishment of catchment management institutions, focusing on integrating the role of WSS in this process. It will particularly focus on lessons from the Sand/ Nkomati for other catchments and countries elsewhere including India.

DWAF have expressed strong interest in the research, which they feel, will:

- contribute to the successful implementation of the National Water Act principles of equity, sustainability and beneficial use,
- address the need for better integration and coordination of water services provision and catchment management,
- meet a need to address the role of productive use of water and enhance socio-economic development.

Follow-up meetings were held with the Mvula Trust and the Strategic Environmental Action team at DWAF, who are both involved in activities relating to the productive use of water resources. Links will be maintained with both these initiatives.

3.1.3 Demand assessment in other countries: Kenya and Tanzania

Recognising that South Africa is in many respects a special case with respect to WSS and IWRM in sub-Saharan Africa – a stronger economy, excellent legislation, and commitment and capacity to reform institutions in the water sector for example – a series of consultations were planned for Kenya, Tanzania and Mozambique. These aimed to:

1. identify to what extent WSS is felt to be an issue within wider IWRM frameworks;
2. determine the existing demand for tools to integrate WSS within WRM projects;
3. identify the approaches most likely to be useful in these countries and which experiences from India or South Africa could most readily be applied.

Consultations in Mozambique unfortunately had to be postponed due to illness of a key (Portuguese speaking) team member.

This section of the report discusses the main results of a series of visits to national and regional level actors in the water and sanitation, and water resources management sectors in Kenya and Tanzania. In Tanzania, consultations were facilitated by Dr Faustin Maganga from the Institute of Resource Assessment (University of Dar-es-Salaam).

Interviews were informal, and sought to introduce the project and its aims and to locate these within the wider context of regional experiences in water supply and water resource management efforts. The list of organisations visited is far from exhaustive, and reflects the limited time and resources to carry out this stage of the work. Nonetheless the results were both interesting and encouraging, and confirm that the issue of dealing with drinking water (and to a lesser extent sanitation) issues within larger water resource management efforts is indeed an important issue.

The organisations visited were:

In Kenya	The World Bank/UNDP Water and Sanitation Programme (WSP) African Water Resources management Forum (hosted by WSP) The Network for Water and Sanitation International (NETWAS) SIDA's Regional Land Management Unit (RELMA)
In Tanzania	The Institute of Resource Assessment (IRA) of the University of Dar es Salaam NETWAS – Tanzania Ministry of Water (Small towns and Rural water supply and sanitation projects) Ministry of Water – Water resources division

This section contains a brief summary of the main findings of the demand assessment exercise. A full list of the people met, and the main points of interviews with each of them can be found in Appendices 3 & 4.

WSS as an issue within wider IWRM

- Respondents in both countries identified areas where conflicts over water resources, and in particular between domestic and other uses of water existed. In addition the drought experienced by both countries last year has once again raised the issue of overall resource scarcity.
- However, again in both countries, it was also clear that it is only in some specific areas that there is conflict, and that the conflict is not always between domestic and other uses. For example in two basin areas in Tanzania (Rufiji and Pangani) the main conflict was perceived as being between irrigation and hydro-power generation.
- In general it seemed that domestic water only becomes an issue in areas (or times) of absolute water shortage. At least in the perception of most of those interviewed, where water resources are plentiful – which is perceived to be the case in some areas in both countries - the 'small' amounts needed for domestic mean the problem of assuring domestic resources is seen principally of one of supply provision.
- In Tanzania the perception of the problem being principally linked to one of supply development was particularly strong – presumably due to decades of more or less uninterrupted decline of systems and service provision.
- Also in Tanzania, there was a clear difference in perceptions between those involved in 'resource' management – who generally saw few conflicts involving domestic supply, and those involved in 'domestic supply', who did.
- Sanitation generally received low recognition as an element within the broader WSS & IWRM picture. Where it was mentioned several times was in relation to the uncontrolled development of shallow wells, particularly in urban settings, where the risk of contamination form sanitary facilities – particularly pit latrines – was seen as being high.

Likely approaches and foci for tool development

- While respondents in both countries agreed on the need for tools to integrated WSS better within IWRM, there were important differences on where they thought the focus on tool development should be.
- In Kenya there was a general perception that widespread corruption, and lack of government capacity meant that in the short term at least there was little prospect of efforts that attempted to

work through central government being successful. The suggestion here was that the 'community management' model of rural water supply was more likely to be successful, building community water resource management in which NGOs and CBOs taking most of the responsibility.

- In Tanzania by way of contrast much of the current focus (including two major World Bank funded projects) is on developing capacity within government. Respondents repeatedly talked of the change in function necessary in government – from providers to facilitators in both water supply and sanitation and water resources management. They saw the crucial tools as being those that would help government personnel to undertake this shift.
- Tanzania already has a basin focussed IWRM programme, currently operational in two pilot basins. There is a reasonable legislative basis for basin level resource management and an established system of water rights. Existing pilot schemes are however reliant on donor and government inputs and as a result it seems unlikely that self-financing water boards would be able to effectively regulate resource use.
- It is worth noting that despite both major Tanzanian projects being World Bank supported there was little evidence of collaboration between them. There seems to be a strong tendency in Tanzania to focus on groundwater resources for water supply and sanitation, while the basin management projects occupy themselves with surface water resources for 'irrigation' (though the same water provides the main domestic supply for urban centres), hydro-power, and 'environment'.
- An interesting point that came out of the meetings in Tanzania is that while those working at the 'basin' level frequently reported no conflict between domestic and other uses (typically concentrating on that between 'irrigation' and hydropower), those looking at management at the 'furrow' level (i.e. within irrigation scheme command areas) reported considerable competition and potential for conflict. The furrow systems are important sources for domestic supply as well as for irrigation. While the amounts used for livestock and domestic use are small, this use has important implications for irrigation efficiency because the furrows must be kept flowing to meet a regular demand.

Conclusions

In conclusion it can be said that while there is a growing awareness of the need to take more account of domestic water supply within wider resource management programmes – and to apply the principles of resource management more fully to water supply – this is a new and untested area for most organisations. In both Tanzania and Kenya current policy remains largely supply-focussed as far as WSS is concerned, with an emphasis on increasing levels of coverage and improving sustainability and cost recovery.

Despite the apparent differences between Tanzania and Kenya, however, it seems clear that in both countries the main source of conflict is over domestic water resources is at the *local* level. This has important implications for the development of tools for better integrating WSS and IWRM activities.

NETWAS, a major regional training organisation has identified IWRM as an area where there is a growing and genuine need for new tools. In Kenya this was primarily seen as being tools for local level actors, while in Tanzania the greater need was for retraining of national level – government – staff.

It is clear that tools and approaches will need to be tailored to the realities of these countries – neither of which have either the legislative base, or the extremes of resource conflict found in India and South Africa. Several respondents mentioned the disparity in terms of South Africa's relative wealth, legislative sophistication, and regulatory ability when compared to their own.

3.1.4 Development of partnerships with implementation programmes and projects

A major effort during the inception has been to establish partnerships with implementation projects and target institutions in India and South Africa. Such linkages are felt to be important in order:

- to facilitate the implementation of participatory action research (PAR) within the context of implementation projects able to act upon research findings and outcomes,
- enhance potential of uptake of the research findings by involving target institutions, and
- to ensure that the research contributes to develop of in-country institutional capacity.

India

In India, the project has established links to support the Andhra Pradesh Rural Livelihoods Project (APRLP), as well as the collaborative research (as part of the review component of the project) focused on watershed development projects underway by BAIF in other states. The APRLP project operates in areas of southern Andhra Pradesh (A.P) where competition for scarce water resources is having serious impacts on drinking water supplies, and this has been identified as a priority issue to be addressed by APRLP. Linkages with APRLP will provide a number of advantages. Most importantly it will provide a well-defined uptake pathway for research findings, through project activities and linkages to key persons and organisations involved in water sector reforms in Andhra Pradesh. To support this collaboration, additional partners working with APRLP will participate and make contributions to the research within the existing budget. This includes commissioned inputs from Dr A.J. James (an Indian natural resource economist with extensive experience in WSS and watershed development) and the NGO Accion Fraterna (part of the Rural Development Trust, RDT) that operates in southern part of the state. Accion Fraterna will also contribute some human resources from their own resources.

Linkages have been established with the Policy Research Programme project led by the University of Leeds that includes research on water policy in Andhra Pradesh.

Firm interest in the research has also been shown by the World Bank WSP-SA with a request received to support WSP-SA supported projects in Andhra Pradesh that are aiming to pilot WSS schemes with integrated measures to promote source sustainability through watershed development and local water management. This will provide an additional opportunity for the research to work with a development project with considerable potential impact, as well as the DFID-funded APRLP project in the same state. Opportunities for collaboration including joint studies/research, workshops, other 'knowledge products', piloting and networking.

South Africa

In South Africa, the project will work with the Department of Water Affairs and Forestry (DWAF), and in partnership with the Save-the-Sand project, an integrated catchment management/ landcare initiative involving cross-sectoral partners. Linkages are now in place to undertake the action research in the Sand River Catchment, Northern Province, in co-ordination with this project.

Participation of DWAF will encompass both Head Office and the Regional Office involvement. The regional offices (Pietersburg, Northern Province and Nelspruit, Mpumulanga) will be involved in direct involvement in the project implementation whereas involvement with regards to policy development and overall guidance of the project will be co-ordinated by Head office. This will involve several Directorates (Catchment Management, Water Conservation and Water Services). The level of involvement will depend on the availability of staff in the Regional and Head office. However, at both levels DWAF have expressed strong support to be involved in the research from the outset, rather than being merely seen as a target for findings:

….The regional office of the Department of Water Affairs and Forestry is in full support of this research project based on the understanding that some members of staff will be actively involved in

the implementation of the project. This will provide an opportunity for the department to have first hand information for some of the issues involved in water resources management activities at localised levels, which would also be helpful when it comes to implementing some sections of the National Water Act. It would also be a learning process for DWAF staff in terms of implementing projects in the regions…. (*Washington Tunha, DWAF regional Office, Northern Province 12 March 2001*)

Other partnerships

Linkages have also been developed with the IRC International Water and Sanitation Centre (Netherlands) programme in Community Integrated Water Resources Management. Dr Patrick Moriarty assisted the inception phase for this project, drawing upon expertise developed through an earlier IRC multi-country study on IWRM and the WSS sector. IRC wish to maintain links with the research project as part of a programme of research on water resources issues, and in particular will provide a useful dissemination pathway for research outputs. The following points summarise discussions on this theme with Patrick Moriarty.

- IRC facilitates the creation, sharing and use of knowledge so that sector staff and organisations can better support poor men, women and children in developing countries to obtain water and sanitation services they will use and can sustain. IRC has three main objectives in achieving this mission: to facilitate the sharing and use of quality sector knowledge; to improve the information and knowledge base of the water and sanitation sector; to strengthen sector resource centres in the South

- IRC is currently developing a project looking at the tools and approaches that will lead to the fuller integration of poor peoples water needs - both productive and domestic into water resource management plans at the catchment or watershed level.

- Currently the water based needs of the rural poor tend to get lost somewhere between the domestic water supply focus of conventional WATSAN projects, and the large, irrigation and industry focussed catchment management plans of water resource agencies.

- The use of water by the rural poor seldom figures in the larger catchment level water allocation schemes of water authorities, or catchment councils. It is largely invisible - being both too dispersed, and individually small scale to merit inclusion. However, there is growing evidence from around the world that once rural people start to use water resources for small scale productive use, particularly micro-irrigation, their combined share rapidly becomes a large part of the total available resource, and conflict is often quick to follow. The case of groundwater mining in India is probably the best known example, but local level conflict over resources is growing alarmingly elsewhere.

- Several 'shibboleths' underlie the current approach to catchment or watershed management in much of the developing world. Many of these are drawn from a northern/temperate understanding of water resources, and hydrological systems and do not stand careful scrutiny. Perhaps the most important is the assumption that ground and surface water form part of a single resource at the catchment scale. In fact in semi-arid regions, the two systems are often largely disconnected, with groundwater resources themselves being highly fragmented and variable across a catchment. This often means that both conflict, and its resolution are far more localised affairs than the 'basin level' so popular with resource planners.

- The current focus on watershed management to augment supply is probably misguided. The amount of extra water that can be made available by such approaches is minimal and frequently difficult to quantify. This supply side approach should be modified in favour of one that focuses on demand management, and local allocation.

It is IRCs belief that initially at least the switch in focus to promoting the use of water resources as part of household and community food security should come from the WATSAN sector. Project planners and implementers need to broaden their focus to take account of all uses of water, and where necessary to develop innovative sources to meet demand. IRC hope over the next four to five years to develop a number of participatory research projects to identify and develop the tools necessary to allow this change in emphasis. Much of the technical knowledge already exists, the challenge is therefore to identify institutional models and capacity necessary to facilitate the change in approach. Local level tools for resource estimation and monitoring, for developing mixed use schemes using multiple sources, for using revenue from productive uses to underpin improved service levels within a DRA framework, and where necessary for helping to resolve conflict over competing uses of water are all needed.

3.1.5 Planning with partners

In addition to the activities described above, planning with partners has included the agreement of sub-contracts to undertake research activities, development of a revised workplan (see section 4.3) and preparation for a workshop in May 2001.

- Contracts are now place between all the organisations and individuals in the research team, except Accion Fraterna where involvement is has been agreed in principle but the sub-contract is still in preparation.

- A collaborative workshop to be held in Andhra Pradesh from 5-14 May 2001 is in preparation, and a first announcement is included in Appendix 1.

3.1.6 Other activities

Other activities have included:

- Drafting of a paper with a working title 'Water Supply and Sanitation & Integrated Water Resources Management: why seek better integration?' which is in preparation.
- Documentation of a 'Methodology for Water Resource Audits' as part of the development of tools and guidelines.
- Design of a project web-site http://www.nri.org/WSS-IWRM (still under construction).

3.2 Poverty assessment

This section includes a summary of some key indicators of poverty in the study areas.

3.2.1 India

The rural population in India is diverse, dispersed by region, caste, and occupational categories. Landless and near landless households, comprising a disproportionate number of scheduled castes, and often accounting for more than 40% of agricultural households, are key indicators of poverty.

The social indicators in Andhra Pradesh suggest high levels of poverty along a number of dimensions. Population density in the state is approximately 242 people per square kilometre. About 30% of the state's population of 73 million people live below the poverty line. The figure in the rural areas, accounting for approximately 70% of the population, is much higher, due in part to chronic under-

Andhra Pradesh

- Population density 232 people/km^2
- Infant mortality 73 per 1000 live births
- Male literacy 44%, Female literacy at 33%

employment and low returns to agriculture. Around 70% of the cultivated area is rain-fed, but rainfall is erratic and much of the region is drought prone. 30% of children under age 6 are malnourished; and infant mortality is 73 per 1000 live births. Across the state, estimates suggest that 55% of households have access to safe water. However drinking water coverage statistics can be misleading, they do not take account of the fact that pumps are often inoperative, or wells run dry during the summer. Within the rural areas less than 6% of the population has access both to safe drinking water and toilet facilities.

Although the proportion of children in the state attending primary school is similar to the average for the whole of the country (approximately 69% for boys and 59% for girls), literacy in the state is much lower. Male literacy (over 15 years) is approximately 44% and female literacy at 33% is one of the lowest in the country. The school drop out rate is also high, approximately 50% in primary schools, and particularly high for girls, scheduled castes, and scheduled tribes.

3.2.2 South Africa

The Sand River Catchment is characterised by high population densities (176 people per square kilometre), high population growth rates (2.4% per year) and in the ex-homeland areas squeezed into the middle reaches of the catchment and where most of the population live, a diminishing and degraded natural resource base. In 1998, the population of the SRSC was estimated as 336 638 people. People live in three small towns and almost 100 villages. Due to population growth many villages have become inter-linked providing a peri-urban effect. The average household size is 6.2 persons.

Opportunities for local formal employment and subsistence agriculture are scarce and the recent economic downturn has reduced even further opportunities for formal employment. Monthly household income varies from R178 to R1138 p.m. ($25 to $ 170 p.m.). Unemployment is estimated to be between 40% and 80% throughout the catchment and most families rely on male migration for income. It is estimated that approximately 50% of males and 14% of women between the ages of 25 and 59 are migrant workers. Not surprisingly, wage remittances and pensions provide the primary source of income for households and the sex ratio (males to females) is 0.48:1 in this age bracket. These are low and thus most households employ multiple strategies to sustain themselves. This includes harvesting of natural resources (for trade or consumptive use), cattle and so-called “informal” activities or, rather, small-scale businesses. Nonetheless, opportunities are limited by access to water. Where this is available, activities include brick-making, hair salons, small nurseries and the like. Women tend to be marginalised from political life and formal economic activities. Domestic violence is common.

Sand River Catchment, South Africa

- Population: 336 638 people with a 2.4% growth rate
- Average density : 176 people km^2
- Formal unemployment is between 40% and 80%,
- Large of proportion of single headed households
- HIV/AIDS is having a serious impact (estimated at 25%).
- Male literacy 70%, female literacy 63%

Chronic and severe shortages have left much of the population in the greater Bushbuckridge area without access to adequate, safe water supplies. Many former Mozambique refugees also reside in the catchment. Many of these people, though well integrated, are particularly vulnerable, unable to secure legal employment, and living in temporary settlements without basic infrastructure such as water supply and electricity.

Average literacy in the local is 66% (70% for men and 63% for women). Although over 90% of children attend primary school this figure falls to 46% for secondary education (of whom only 6% matriculate), and 3% for tertiary education. Moreover, the teacher-pupil ratio is low; between 1:55

and 1:119. Women play an important economic and social role. Their responsibilities include water and fuelwood collection, the running of household gardens and the sale of any surplus. Women also head approximately 30% of households with children. However, despite their key role, women tend to be marginalised from political life.

4 Project planning

4.1 Implications of initial findings

The initial findings of the study have confirmed the interest of a broad range of target institutions in India, South Africa and elsewhere in the research issues. The proposed focus areas for the research in the Sand River Catchment and southern Andhra Pradesh are both areas where the project will meet local needs to improve water resources management for the benefit of domestic users and small-scale economic activities.

4.2 Review of project purpose and outputs

A review of the project purpose and outputs is shown in the output to propose review form.

OUTPUT TO PURPOSE SUMMARY FORM				
Title: Improved water resources management		**Country:** India, South Africa	**MISCODE:**	
Report No.	**Date:** 16 February 2001	**Project start date:** 1 July 2000 **Project end date:** 31 March 2004	**Stage of project**: Inception phase	
Project framework				
Goal statement: Improved water resources management				
Purpose statement: Better institutional and operational solutions for water resources management adopted that promote improved access of the rural poor to safe water supplies for consumptive and productive use.				
Outputs:	**OVIs:**	**Progress:**	**Recommendations/actions:**	**Rating:**
1. Assessment of existing mechanisms, in water-stressed areas (quantity and quality) with competition for water between multiple uses, to promote more sustainable and equitable access for the rural poor to water supplies for consumptive (drinking and other domestic uses) and productive use (inc. small-scale irrigation, livestock, SMEs).	Comprehensive review capturing worldwide experience of best-practice and emerging approaches (inc. community-based management, regulatory approaches, new institutional structures and economic instruments) by Mar 2001 Analysis of policy and institutional conditions for uptake by Mar 2001	Working paper in progress. Issues addressed in demand assessment and consultations.	Papers on South African and Indian experiences to be completed by May 2001, for workshop in Andhra Pradesh Intervention options to be identified through greater emphasis on participatory research reflecting local circumstances, than transfer of successful approaches from elsewhere. Chapter to be prepared for project report.	
2. Key findings from piloting of approaches that integrate water supply and sanitation with watershed development and management, and synthesis of tested methodologies,	Documented outcomes (hydrological, institutional, socio-economic) of pilot case studies focused on poor communities within 2 watersheds in India and 1 in S Africa by Mar 2004	Initial project planning meetings held with NRI, AWARD, BAIF and Accion Fraterna Linkages developed with Save-the-Sand Project and Andhra Pradesh Rural Livelihoods Project as basis for implementing participatory action research Inception meeting held 12-15 September, 2000	Need to identify specific communities and locations for participatory action research based upon further analysis and consultations (including local government), and	

OUTPUT TO PURPOSE SUMMARY FORM				
Title: Improved water resources management		**Country:** India, South Africa	**MISCODE:**	
Report No.	**Date:** 16 February 2001	**Project start date:** 1 July 2000 **Project end date:** 31 March 2004	**Stage of project**: Inception phase	
Project framework				
Goal statement: Improved water resources management				
Purpose statement: Better institutional and operational solutions for water resources management adopted that promote improved access of the rural poor to safe water supplies for consumptive and productive use.				
Outputs:	**OVIs:**	**Progress:**	**Recommendations/actions:**	**Rating:**
	Documentation on piloting of methodologies for site selection, assessment of resources, issues and problems (hydrological, institutional, socio-economic), participatory decision-making, implementation, monitoring and evaluation		drawing upon APRLP water resources audits and use of Methodology for Participatory Assessment (MPA).	
	Demand assessment in 5 countries (inc. S Africa, & India) and identified uptake pathways by December 2000.	Demand assessed in India, South Africa, Tanzania and Kenya and some regional organisations consulted in eastern Africa and south Asia, and documented in project inception reports. Uptake pathways identified especially through partnerships with implementation projects, and initial contacts with training and dissemination organisations including IRC and NETWAS.	To further develop links, especially with IRC's training and dissemination programme. To contact training organisations in South Africa.	
3. Demand-led planning tools developed, validated and disseminated with guidelines for use that	Tools and guidelines developed in response to demand, and validated in collaboration with long-	Initiated documentation of a methodology for water resources audits that has proved successful in studies for KAWAD and APRLP projects in India and has potential for wider use.		

OUTPUT TO PURPOSE SUMMARY FORM				
Title: Improved water resources management		**Country:** India, South Africa	**MISCODE:**	
Report No.	**Date:** 16 February 2001	**Project start date:** 1 July 2000 **Project end date:** 31 March 2004	**Stage of project**: Inception phase	
Project framework				
Goal statement: Improved water resources management				
Purpose statement: Better institutional and operational solutions for water resources management adopted that promote improved access of the rural poor to safe water supplies for consumptive and productive use.				
Outputs: promote and support, in appropriate circumstances, the integration of rural water supply and sanitation with watershed development and management	**OVIs:** term participatory watershed development projects in at least 2 watersheds in different settings in India and 1 in S Africa by March 2004. Dissemination of tools/guidelines through identified uptake pathways in 5 countries by March 2004	**Progress:**	**Recommendations/actions:**	**Rating:**
Purpose: Better institutional and operational solutions for water resources management adopted that promote improved access of the rural poor to safe water supplies for consumptive and productive use.	**OVIs** Uptake reflected in guidelines for development and management of watersheds and RWSS in India, S Africa and elsewhere, and tools in use on at least 2 major development projects by Mar 2005	**Progress:**	**Recommendations/action**	

4.3 Description of project methodology

Following the inception phase activities, the research is based upon 3 components:

- A review component
- An action research phase
- Development and dissemination of planning tools and guidelines

A revised logical framework for the activities is included in Appendix 5, and a revised workplan, staff inputs and locations for project work is included at Appendix 6.

Changes proposed to the log-frame are shown in *italics* and completed activities are shaded.

Highlighted changes include:

- recognition of the need to include urban and peri-urban areas. The logframe has been modified broadening the focus from rural areas to encompass urban and peri-urban locations. The project locations include areas of high population density in the Sand River Catchment such as the per-urban sprawl around Thulamahashe, and many large villages/ towns in southern Andhra Pradesh with populations up to around 10,000 people that have some of the most severe water supply problems. Urban-rural linkages are a key issue.

4.4 Review of project team, partners/ collaborators and responsibilities

The research will be led by Indian and South African NGOs working with local partners and supported by local consultants and UK inputs. In India, Accion Fraterna will implement research activities working closely with APRLP, with BAIF implementing some parallel research as part of the review component. In South Africa, AWARD will lead research activities working closely with the SSP.

4.4.1 Project team

Y.V. Malla Reddy will be responsible for Accion Fraterna inputs[2]. Accion Fraterna will draw upon field level staff who are already in place and from time-to-time agreed local consultants. BAIF activities will be led by *BK Kakade* who has experience of both technical and social aspects of watershed development, drawing upon field staff and agreed inputs from local consultants.

Sharon Pollard, an environmental specialist and head of AWARD's Environmental Support component will be responsible for AWARD inputs. Sharon has considerable experience of catchment management and rural development in the Sand River Catchment and is currently the coordinator of project implementation for the Save-the-Sand Project. Research activities will be undertaken by *Kgopotso Mokgope*, a social scientist who has been recruited by AWARD as a Junior Research Officer to work full-time on the project within the Environmental Support Component. Kgopotso joined AWARD on 5 February 2001 from the Programme for Land and Agrarian Studies at the University of the Western Cape where she was involved in participatory research on land reform. As appropriate, and where agreed with DFID, the research may draw upon the skills and experience of other AWARD staff, particularly field staff. Progress will be monitored internally and inputs from

[2] Accion Fraterna implement the watershed development programme as part of the Rural Development Trust (RDT), Anantapur.

other groups facilitated, through short bi-monthly progress meetings with heads of the environmental support, community support and institutional support components at AWARD.

John Butterworth, a water resources specialist at NRI will lead UK inputs and is the project coordinator with overall responsibility on behalf of NRI for the project. To support research in both India and South Africa, John will be supported by colleagues at NRI and other experienced UK-based researchers. Sabine Gündel and Jim Hancock are both CBNRM specialists at NRI providing expertise in social development, participatory approaches and community-level institutions. Sabine or Jim will support implementation of participatory action research, and monitoring and evaluation. During the inception phase, Jim Hancock has provided these inputs while Sabine has been on maternity leave. The balance of these inputs will be reviewed in due course. Elizabeth Robinson, NRI is providing expertise in institutions and natural resource economics. *Charles Batchelor* of Water Resources Management Ltd. is a hydrologist with worldwide experience of participatory watershed management projects. Charles is providing inputs on water resource audits, and will facilitate linkage of the research to APRLP priorities. *John Soussan* is a geographer with broad experience in CBNRM in Asia and Africa including water resources management, and will focus on supporting policy level findings from the research. John will facilitate links with the University of Leeds-led Policy Research Programme project in Andhra Pradesh.

4.4.2 Partners and collaborators

Key partners in both India and South Africa are development projects and local government. Development of partnerships with implementation projects is discussed in section 3.1.4. The APRLP in India is being implemented through government structures and includes NGO implementation. The SSP in South Africa is being implemented by DWAF and the Department of Agriculture. Key partners here will also include new emerging institutions, the Nkomati Catchment Management Agency which is under establishment and the newly-formed Eastern District Local Government.

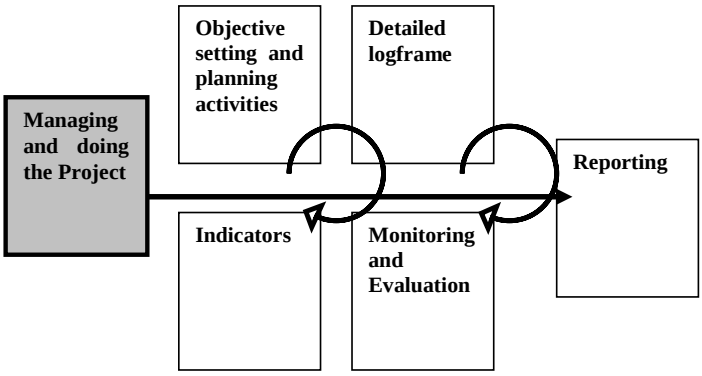
4.5 Project cycle management

4.5.1 Regular project planning, monitoring and evaluation

The key researchers and partners of this research project, to stay firmly focused on delivering useful results, will regularly monitor what they are doing and review that this results in desired outcomes. This will then result in a review of plans with a consideration of possible changes, some of which may need negotiation with DFID and partners. Following the basic principles of this project, it is expected that planning, monitoring and evaluation (PM&E) will be:

- Participatory to the extent possible and efficient. All key stakeholders should have a chance to influence key decisions. When these decisions are made they should be sign-posted.
- Gathering M&E info to learn (capacity building) what are the best processes and ways of doing things. Indicators and information on research methods used should be looked at.
- Keeping communication simple and user friendly. Maximise website and simple reports (e.g. summaries) on project progress as tools or dissemination and identifying demand.

There is a fundamental link between planning and M&E. Planning is not a one off activity. The planning and review cycle, should be a process of refinement of plans and strategies, and indicators of how to measure changes, at the same time as strengthening and widening the ownership of the project by the main stakeholders (see figure below). The logframe, while also forming part of an initial contract with DFID, should also been seen as a dynamic management and communication tool.



Regular and annual project internal reviews will be linked to the preparation of DFID six-monthly reports due in March and September.

4.5.2 Description of Action, Outputs and Impact Indicators

Bearing in mind the above points on the links between planning and M&E,the logframe can be elaborated with refined indicators to assist in project management. The members of the project team have been familiarised with the existing logframe at the workshops and meetings held in South Africa and India. The purpose of this section is to expand on the development of more detailed indicators that can be used to measure project progress and how to build these into project review and planning, depending on local agreements on their applicability. In deciding on the indicators to be used, one should follow the SMART rules for objectives: specific, measurable, achievable, relevant and time-bound.

Impacts

The desired impact of the project is encapsulated in the 'Goal' and 'Purpose' levels of the project logframe, together with follow on expected effects on actual indicators of improved well being of the poor implied in the higher levels of the KaR Research programme logframe (this could be a 'Supergoal' level of this logframe).

While the project goal may be outside the immediate scope of project deliverables, it nevertheless forms the centre of the vision of what the partners are driving towards, and there should be clear and measurable ways for measuring if this is being reached. The purpose of the project should be reflected in measures of its overall achievement (its successful performance).

From present logframe		Proposed project planning and management	
Narrative summary	**Objectively verifiable indicators**	**Emerging indicators (what)**	**Planning and M&E process (when and who)**
Supergoal: *Improved sustainability of livelihoods and wellbeing of the poor*		*As a result of improved IWRM resulting from project goals amongst target poor:* • *Increased income from productive water use (crops and livestock, other)* • *Increased income due to reduced WSS costs* • *Improved health due to improved water provision (reduced waterborne diseases in particular)* • *Reduced local water conflicts, as identified by target groups*	*Initially identified through situational analysis and PAR. The PAR will eventually also identify changes, to then be built into end of project evaluation.* *All stakeholders will have a major role and interest in this info:* • *Community stakeholders* • *Local, national agencies* • *Project team* • *donor*
Goal: Improved water resources management	Improved provision of safe water supplies for the consumptive and productive activities of the rural poor	*As a result of project achievements (below):* • *Greater water allocations (% and/or benchmark volumes) to identified need of target rural poor* • *Improved reliability of supplies* • *Improved water quality where identified as critical* • *More efficient use where critical*	
Purpose: *More effective* institutional and operational solutions for water resources management adopted that promote improved access of the *poor* to safe water supplies for consumptive and productive use.	Uptake reflected in guidelines for development and management of watersheds and *WSS* in India, S Africa and elsewhere, and tools in use on at least 2 major development projects by Mar 2005	*As identified through demand, and subsequent references made:* • *Changes made in key policies and programmes (Save the Sand India, DWAF, SA, etc; APRLP and WSP-SA India).* • *New policies guidelines used by existing and emerging institutions* • *Functional partnerships and agreements developed* • *Resources allocated to implementing new approaches, methodologies* *The nature of guidelines and tools will be the final outcome of the project.*	*Information identified through:* • *Demand assessment* • *Situational analysis* • *Institutional analysis* • *Participatory action research* *These should offer opportunities for an annual review of these indicators by:* • *Community organisation reps involved in PAR* • *Local agencies and national agencies involved in project* • *Project team* • *Donor through annual report* *Also wider circulation to agencies and programmes identified in demand assessment, especially at the end of the project.*

Outputs

From present logframe		Proposed project planning and management	
Narrative summary (Example)	**Objectively verifiable indicators**	**Emerging indicators (what)**	**Planning and M&E process (when and who)**

Outputs:
1. Assessment of existing mechanisms, in water-stressed areas (quantity and quality) with competition for water between multiple uses, to promote more sustainable and equitable access for the rural poor to water supplies for consumptive (drinking and other domestic uses) and productive use (inc. small-scale irrigation, livestock, SMEs).
	Comprehensive review capturing world-wide experience of best-practice and emerging approaches (inc. community-based management, regulatory approaches, new institutional structures and economic instruments) by *May 2001*
	
	Analysis of policy and institutional conditions for uptake by *May 2001*
		Quality of review, to be described, this can form a mutually agreed terms of reference among partners:
		• *Comprehensiveness: as to be laid out in proposed outline.*
		• *Expected nature of consultation and its outcomes, at local and global level.*
		• *Factors which will make it useful for field testing:*
		  • *To focus on existing local processes*
		  • *Applicability of transfer to other areas*
		  • *Levels of approaches: local, catchment, national etc*
		  • *How will it address identified demand*
			Objectives and indicators at the output level (deliverables) should be developed in planning the activities to deliver the output, this can be specific workshop or 6-monthly meetings, where key groups involved in delivering the outputs are involved:
			• *Project team members*
			• *Local national agency partner reps*
			• *PAR target community reps*
			
			It is largely the concern of the project team with the support of the above groups to monitor these indicators on a short term basis, again through workshops or 6 monthly meetings.
			
			The quality of the outputs will be reviewed annually, with donor, and wider project team group.

Activities

From present logframe		Proposed project planning and management	
Narrative summary (Example)	**Objectively verifiable indicators**	**Emerging indicators (what)**	**Planning and M&E process (when and who)**
Activities: 1.0 Review and consultations to identify intervention options	Comprehensive review by *May 2001* Consultations held by *May 2001* 2 workshops held in India and S Africa by *Aug 2001*	*Quality of Activity:* *Activity planning should be very output focused, as this gives strong indicators of proposed quality of activity* *Overall assessment of activity efficiency, to strengthen project management:* • *Working relationships* • *Communication* • *Resources* • *Partner capacities* • *Budget and cost*	*Particularly useful in terms of short term planning, quarterly or 6-monthly basis.* *Detailed activity planning shall be devolved as far as possible to partners within a framework of resources and timing.* *Detailed PAR activities will be planned with:* • *Project team field implementers* • *Community reps* • *Local agency partners* *Annual efficiency review, by:* • *Project team.* • *Donor (?)*

4.6 Dissemination and uptake strategy

An outline dissemination strategy has been developed during the inception phase of the project. Key elements include:

- the development of partnerships with implementation projects and programmes, including DFID bilateral programmes in India, and South Africa.
- continuous dissemination via a project website (still under construction) and other appropriate fora including WEDC water and sanitation conferences, the DFID WATER newsletter and journals.
- development of partnerships and collaborative development of materials with training organisations including the IRC International Water and Sanitation Centre, a leading information dissemination and training centre in the WSS sector.
- the documentation of practical and replicable approaches and guidelines for better integration of WSS and IWRM. These will include a series of tools and will be disseminated in an appropriate format, possibly CD-Rom based.
- Appropriate documentation and targeting of policy level findings aimed at influencing policy development.

5 Appendices

Appendix 1 Summary of consultations in India

Appendix 2 Summary of consultations in South Africa

Appendix 3 Summary of interviews with regional and national actors in Kenya

Appendix 4 Summary of interviews with regional and national actors in Tanzania

Appendix 5 Revised logical framework

Appendix 6. Revised work plan, staff inputs and locations for project work

Appendix 1 Summary of consultations in India

Andhra Pradesh Rural Livelihoods Project (APRLP)

During the period 16-22 November 2000, John Butterworth (project co-ordinator) and Charles Batchelor visited various organisations in Andhra Pradesh to discuss the potential for developing linkages between the research and the Andhra Pradesh Rural Livelihoods Project (APRLP) in India. The following persons were consulted:

- Mr S.P.Tucker (APRLP, Hyderabad)
- Dr M.S. Rama Mohan Rao (Head of Station, CSWCRTI, Bellary)
- Mr S.Gupta (Project Director, Drought-Prone Areas Programme, Kurnool)
- Mr Y.V.Malla Reddy, Accion Fraterna

The project was also discussed with the participants in the APRLP Water Resource Audit (WRA) planning meeting that was held in the DPAP offices, Kurnool during 20-22 November.

It was the consensus of the persons consulted that there would be mutual benefits to be gained by linking the KaR project research with APRLP activities. The scope for sharing of experiences between approaches to water management in the South African and Indian contexts, and lesson-learning through joint research in both countries was highlighted. It was proposed that the study could build upon the findings of the WRAs being undertaken initially in two mandals - one each in Kurnool and Anantapur Districts. Therefore it should be flexible to address the key water supply and sanitation research issues that emerge from these studies. Potential follow-up work might involve:

- In-depth studies (over a full year?) on water availability, use and livelihood impacts. Might compare 2 towns (e.g. Kalyandurg in Anantapur or similar and Thulamahashe in Northern Province, South Africa) and/or villages in each country that experience drinking water shortages. In particular, the project might study the ways in which individual households, communities and village-level institutions respond to and cope with water shortages. The in-depth studies will also provide a baseline for evaluating the impact of new policies, legislation etc.
- Drawing on ideas or suggestions that might result from the south-south links, the KAR project could help the APRLP pilot approaches for better water management at the village/mandal level, focusing on villages with drinking water shortages. These might include fluoride-affected villages, and areas where groundwater levels are declining with resulting seasonal water shortages and increased vulnerability to drought. There should be a focus on managing both supply and demand, and institutional solutions to manage water for different uses.
- Development, documentation and synthesis of methodologies and training materials that meet the needs of APRLP and other watershed development projects.

Comment [CHB1]: My view is that the focus should definitely be on management, however, this should be management of supply and demand. We mustn't forget that many poorer social groupings do get water because of poor supply management.

It is proposed that work at the village/district level could be undertaken with Accion Fraterna and with key institutions involved in APRLP at the district/state level. The role of the KaR project clearly should be to provide support and specialist advice. But it must be careful, with limited resources, not to try and do things that could and should be done by the APRLP. It is understood that good co-ordination will be necessitated in this regard, and to avoid increasing burdens upon key DPAP/DDP/NGO staff.

Proposed next steps arising from the various meetings were:

- To prepare a paper on water resource management and water supply and sanitation in A.P. to complement a similar paper already produced for South Africa (by end April 2001).
- To organise a collaborative study visit/workshop involving researchers and key institutions from South Africa and India during May 2001 (announcement attached). The workshop would aim to

build linkages between partners in South Africa and India, and further develop research activities building upon the WRAs. It would be followed by a similar study visit/workshop in South Africa.

- to continue to develop linkages with the policy research programme project led by the University of Leeds that includes components on water management. John Soussan who heads this project, is also a collaborator in the KaR study.

Water and Sanitation Programme - South Asia (WSP-SA)

Charles Batchelor and Viju James subsequently met Mike Webster from the Water and Sanitation Programme South Asia (WSP-SA) on 18 January 2001. WSP-SA are currently supporting an innovative Government of India-funded rural water supply and sanitation project that among other activities, aims to address problems of resources scarcity through better watershed management. Under the RGNDWM's Accelerated Water and Sanitation Program, 20% of the national funds are being directed to 58 districts spread all over the country. The funding, which is being disbursed directly to the districts, is being used to pilot improved WSS procedures (e.g. more demand responsive approaches, cost recovery, state as a facilitator not a provider, community participation etc.). In Andhra Pradesh, there are five districts that fall under this program (one funded by the Dutch?). Two are APRLP districts (i.e. Nalgonda and Prakasam). Both projects/programmes are using the AP Academy of Rural Development (APARD) as the location of their support offices. A common feature of both projects/programmes is recognition of the need to protect drinking water sources.

WSP have subsequently expressed support for the objectives of the research and an interest in collaboration and utilisation of the research outputs. A letter received from the programme is attached. The first project activity, that might involve WSP and APRLP staff, is the proposed workshop in AP during 5-14 May.

Dear Sir/ Madam

Re: First announcement of a collaborative workshop on 'Water Supply & Sanitation and Watershed Development: positive and negative interactions' in Andhra Pradesh, India, 5-14 May 2001

As an activity of the Indo-South Africa-UK research project on Water, Households and Rural Livelihoods (WHIRL)[3], a workshop on '*Water Supply & Sanitation and Watershed Development: positive and negative interactions*' will be held in Andhra Pradesh, India, between 5-14 May 2001. The workshop is arranged as a series of site visits and discussion sessions, together with seminars to be held in Bellary on 7 May, Kurnool on 10 May and Hyderabad on 14 May.

The research team would like to invite you to attend the whole workshop, or alternatively either of the seminars in Bellary, Kurnool or Hyderabad. We would also be happy for you to bring this workshop to the attention of your colleagues implementing RGNDWM projects in AP.

The *purpose* of the workshop will be to explore water resources issues faced by people in southern Andhra Pradesh, particularly how these impact on drinking water supplies for the rural and urban poor, and to identify the potential for watershed development (or catchment management) projects and programmes to address or compound these problems. It will address the negative consequences of current water use patterns, and approaches to tackle these problems. Issues that are expected to take prominence include:

- impacts of overexploitation of groundwater (for irrigation) on drinking water supplies,
- measures to augment water resources and protect domestic supplies,
- possible negative impacts of watershed development projects to stimulate water use and increase overexploitation,
- potential for legislative, institutional and practical solutions to improve the allocation, management (especially demand management) and regulation of water resources.

The workshop will include a number of participants from *South Africa*, who are involved in parallel research on similar issues. A number of interesting complementarities exist between the experiences and approaches being followed to address the water resource problems faced in India and South Africa. In South Africa, new legal and regulatory frameworks and long experience of effective management of water resources at the macro-level, provide good examples of how to potentially address similar issues elsewhere. In India,

[3] This project is supported by the UK Department for International Development (DFID) through the Infrastructure and Urban Development Division's Knowledge and Research programme. Project R7804 'Integrating drinking water needs in watershed projects'.

Natural Resources Institute
Medway University Campus
Central Avenue, Chatham Maritime
Kent ME4 4TB, United Kingdom

Telephone: +44 (0)1634 883615 (direct)
Fax: +44 (0)1634 883959
Email: j.a.butterworth@greenwich.ac.uk
Internet: http://www.nri.org

strengths in local-level rural development, long experience of watershed development as an approach, and experiences in scaling-up and replicating success offer rich lessons for poverty alleviation programmes elsewhere. Sharing lessons across these two different contexts will be an important thread running through the workshop, and is expected to lead to further south-south linkages and collaborative research.

The *approach* taken by the workshop will combine a series of site visits, workshop sessions and seminars to identify and explore issues and problems faced by poor communities. Visits will include watershed development project sites, rural and urban water supply and sanitation schemes, and villages and towns with severe drinking water shortages facilitated by NGOs and development projects working in these areas. It will involve travelling between Bangalore and Hyderabad over a period of 10 days, with overnights stops en-route in Bellary, Kurnool (and/or Anantapur). One day seminars in Bellary and Kurnool will provide an opportunity for a wider range of stakeholders to be involved at district and state levels. The final day of the workshop will involve a seminar in Hyderabad with a larger group of participants from Andhra Pradesh and elsewhere in India.

A novel *decision-making approach*[4], that is well suited to the issues faced in promoting sustainable water resource development will be used throughout the workshop. This will provide a mechanism to integrate multi-disciplinary thinking, combine quantitative and qualitative data and allow the views of a wide range of stakeholder to be represented. The output from the workshop will be a dynamic 'map' that represents the views of the workshop participants and allow key issues and priorities for action to be identified. These views will be presented by the workshop participants at the Hyderabad seminar.

Provisional workshop itinerary and logistical arrangements

The provisional timetable and itinerary is as follows:

5 May	Participants arrive and meet in Bangalore
6 May	Travel to Bellary, stopping at watershed development villages en-route
7 May	Bellary Seminar
8 May	Travel to Kurnool via watershed development sites/ small town water supply schemes
9 May	Visits to watersheds and rural water supply schemes in Kurnool and Anantapur
10 May	Kurnool Seminar (am) and workshop sessions
11 May	Workshop sessions
12 May	Travel to Hyderabad by road (via further sites) or rail
13 May	Rest day
14 May	Hyderabad Seminar (at Viceroy)

The nature of the workshop will be very intensive and will include afternoon and evening sessions on the days of field visits, as well as considerable travel. Participants will visit a range of field sites in small groups, with specific tasks to complete. Because of the travel involved, and the tasks to be completed by workshop participants, it is essential that participants attend either the specially arranged seminars in Bellary, Kurnool or Hyderabad or for all 10 days.

Logistical arrangements also mean that the workshop will be restricted to invited participants only. Unless agreed in writing prior to the workshop, it is expected that participating organisations will meet the costs of travel to attend either the entire workshop or seminars, and the costs of accommodation and meals. For participants attending the entire workshop, transport between Bangalore, Bellary, Kurnool and Hyderbad will be provided. Limited support for actual travel, accommodation and meal costs for invited participants whose organisations are unable to fund

[4] The use of Bayesian networks will be facilitated at the workshop by Jeremy Cain (Centre for Ecology and Hydrology) and Patrick Moriarty (IRC International Water and Sanitation Center). The use of Bayesian networks for natural resource management has been developed under DFID KaR project R7137, Integrated planning and management of water resources.

attendance may be available. In these cases, all other expenses must be met by participants. Accommodation bookings will be made by the workshop organisers.

Participants planning to attend the whole workshop should arrange to arrive in Bangalore on or before the 5 May and depart from Hyderabad after 1800hrs on 14 May. The times of the seminars in Bellary, Kurnool and Hyderbad will be confirmed in a second announcement to be sent to all intending participants before the 30 March.
Warning: May is also the hottest month in this part of India!

Optional activities

In the week following the workshop, and subject to sufficient demand, it may be possible to optionally arrange either:

- Pairing and shadowing between participants from South Africa and India allowing an opportunity for workshop participants from South Africa to spend several days with counterparts working in similar contexts e.g. NGO, government etc., to explore in more detail the issues and challenges faced, and develop south-south collaboration and links.
- A short training course in the use of Bayesian networks as a tool for better decision-making in natural resources management.

Participants are asked to identify interest in either of these options as soon as possible to enable the necessary arrangements to be made.

Follow-up activities after the workshop

The purpose of the research project is to promote better institutional and operational solutions for water resources management that lead to improved access of the rural poor to safe water supplies for drinking and other uses. This 4-year project, funded by the DFID Knowledge and Research (KaR) programme, is based upon collaborative research in India and South Africa. In South Africa, the project is working with AWARD (Association for Water and Rural Development), the Department of Water Affairs and Forestry (DWAF), and in partnership with the 'Save the Sand project'. In India, activities are focused on Andhra Pradesh working with Accion Fraterna and the Andhra Pradesh Rural Livelihoods Project (APRLP) with additional research by BAIF Development Research Foundation underway in other states. The project aims to establish and draw upon south-south linkages, and to develop, validate and disseminate demand-led guidelines that promote the integration of rural water supply and sanitation within watershed development programmes. The workshop will contribute to development of this project, and opportunities for further links and collaboration are expected to arise from the workshop.

I hope you will be able to attend and look forward to your response (please send this to j.a.butterworth@gre.ac.uk). As the number of participants will be strictly limited, I should be grateful if you would reply to this invitation by 1 March at the latest, and making clear which parts of the workshop you wish to attend.

Yours sincerely,

John Butterworth
(Project Co-ordinator, WHIRL)

Water and Sanitation Program
An international partnership to help the poor gain sustained access to improved water supply and sanitation services.

South Asia (WSP-SA) World Bank P.O. Box 416, 55 Lodi Estate New Delhi 110 003, India
Phone (91-11) 469-0488, 469-0489 **Fax** (91-11) 462-8250 **Email** mwebster@worldbank.org **Website** http://www.wsp.org

OFFICE MEMORANDUM

DATE: February 23, 2011

TO: Dr JA Butterworth
Natural Resources Institute
Central Avenue, Chatham Maritime
Kent ME4 4TB, United Kingdom

FROM: Mike Webster

EXTENSION: 467

SUBJECT: **DFID KAR:**
Integrating WSS & catchment management:
Promoting access of the poor to secure, safe and sustainable rural water supplies in areas of water scarcity

Dear Dr John Butterworth

I discussed the potential for the Water and Sanitation Program – South Asia to collaborate with the above KAR programme with your colleague Charles Batchelor on 18 January 2001 in our Delhi offices. As indicated before, WSP-SA would be interested in such a collaboration and in the outputs from the research. We realize the need for responsible Integrated Water Resource Management to be an integral component of drinking water supply and sanitation projects and would welcome more research in this area. We have a particular interest in advising the Government of India, and the three states in which we are working closely (Andhra Pradesh, Kerala and Maharashtra), through the current RWSS sector reform programme how best to take on some of these principles. We would be interested in joint dissemination activities and in peer reviewing the process.

Best regards,

Mike Webster
Rural Development Specialist
Water and Sanitation Program – South Asia

The Water and Sanitation Program's main funding partners are the governments of Australia, Belgium, Canada, Denmark, Germany, Italy, Luxembourg, Netherlands, Norway, Sweden, Switzerland, the United Kingdom, The United Nations Development Programme, and the World Bank.

Appendix 2 Summary of consultations in South Africa

This appendix includes a summary of follow-up consultations held in February 2001.

AWARD workshop

On the 5 & 6 February 2001, AWARD staff representing a range of disciplines and including field workers, engineers, social scientists, institutional and environmental specialists met to further develop the research priorities for the project. Staff present were James Rhoda, Peter Segkobela, Toka Molapo, Kgopotso Mokgope, Modjadji Letsoalo, Sipho Molambo, Mohammed Wardere, and Derrick Maesela.

The workshop drew upon the outcomes of the inception workshop, and was facilitated using a Bayesian Network to grasp the complex interrelationships between livelihoods, water supply and sanitation, and water resources management in the Sand River Catchment (SRC). Use of this technique was facilitated by Patrick Moriarty from IRC International Water and Sanitation Center. The Bayesian network proved by a powerful tool in capturing the views of this group of stakeholders.

Bayesian Network for 'water-based livelihoods' in the Sand River Catchment

The Bayesian Network designed by the staff of AWARD to illustrate their understanding of the main factors influencing people's water based livelihoods is attached. The labels at the top of the boxes (known as nodes) give the name of the factor, the words underneath give the possible states for that factor. So, for example, the box immediately above 'improved livelihoods' refers to a factor called 'production' which can be either high or low. The arrows on the diagram reflect the direction of cause and affect so, for example, 'Production' has an affect on 'Improved water based livelihoods' not the other way around.

Starting at the main objective node ('Improved water based livelihoods') and working backwards along the chain of cause and affect, it is possible to see how a variety of inter-linked factors areathought to affect the objective. By using the computer software in which the network was developed it wss possible to evaluate the relative importance of changes to the states associated with various factors and groups of factors.

In the reasoning of the AWARD staff who produced the network, water based livelihoods have two major components: a health related aspect, largely driven by access to 'domestic' water; and a production based aspect, driven by a combination of access to 'productive' water, and an ability to use it. In the network 'production' is used as shorthand to represent all household activities in which water plays a productive role e.g. gardening, making bricks, brewing beer, etc. It includes components of household food security as well as economic activity. An important assumption that came to light during the development of the network is that in overall livelihoods, water for productive purposes is considered to have greater impact than water for domestic purposes. This assumption was viewed as being so important that it has become a key research focus for the project.

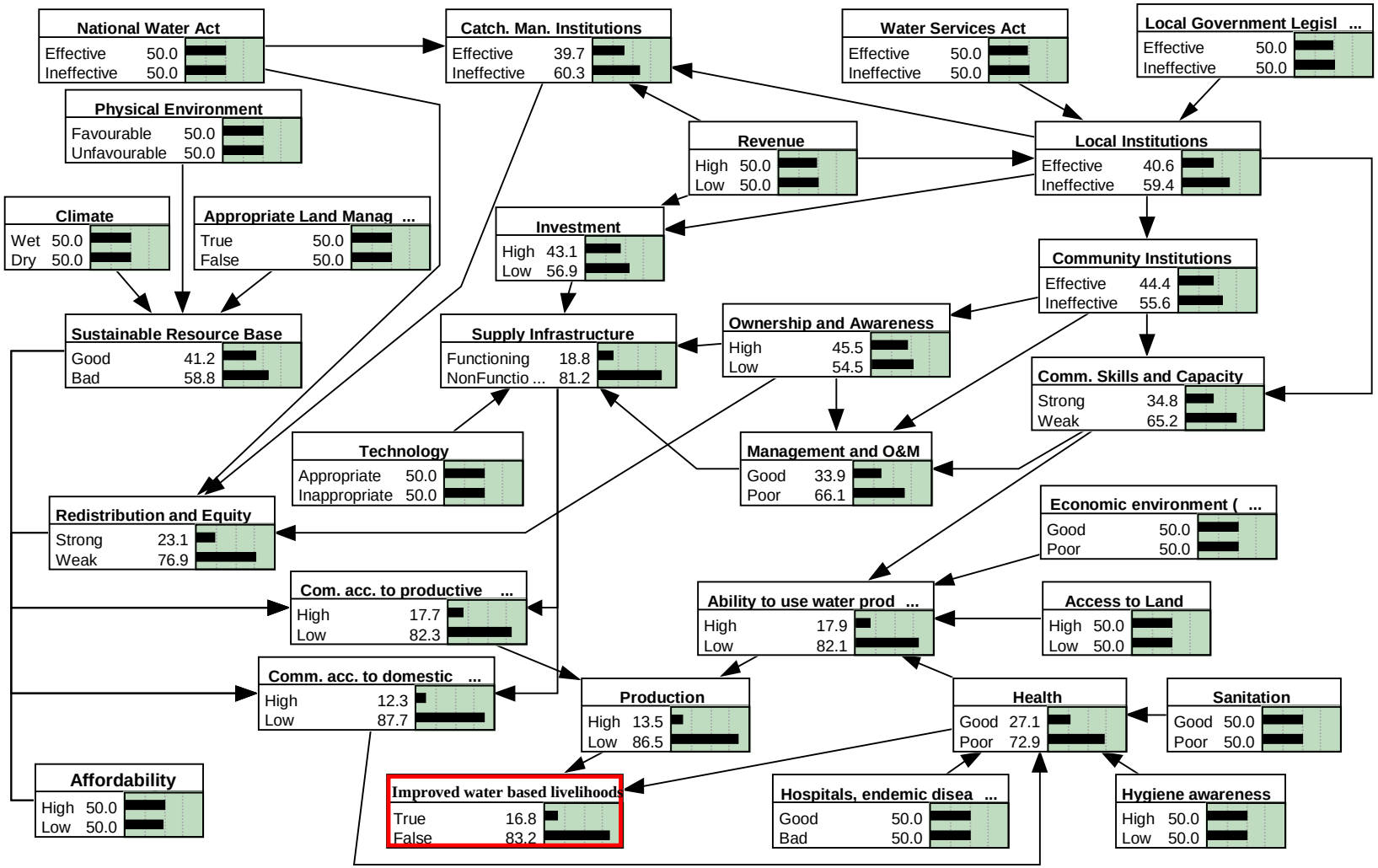
Working back along the chain of logic expressed in the network, access to water for both productive and domestic use is seen to rely on a combination of the physical resource base, allocation ('redistribution and equity'), affordability, and supply infrastructure. Equitable allocation is believed to be more important than the physical resource base, although the two together need to be assured. Equitable allocation is seen to rely on enabling national legislation, but perhaps more importantly (at least from the point of view of AWARD staff) also on effective catchment level institutions. Affordability has an important negative impact, in that where water is too expensive it acts as an effective block to improving livelihoods – regardless of what is done in terms of improving allocation

or resource availability. Supply infrastructure has a similar role – without a decent infrastructure, addressing allocation or resource availability issues will be futile.

Looking at the other key control to improving livelihoods through water for production, 'ability to use water productively', a complex web of controlling factors can be seen. All of these must be present in some degree for people to be able to benefit fully from increased access to water. Access to land, labour, and a sound economic environment (which lumped together issues such as access to credit and markets) are all crucial, but were felt to be outside the immediate sphere of the project. However community skills and capacity were also crucial, and here that a clear field for intervention exists.

A final major group of factors affecting livelihoods is health as affected through access to domestic water. While this was felt to relatively less important than production it nonetheless plays a crucial role in livelihoods. Here the networks suggests that hygiene awareness and sanitation can play an effective role in improving health, but ONLY where sufficient water is available.

Neither 'Gender' nor 'Poverty' appears directly on the network; this is because they are cross cutting themes. It was agreed that it is impossible to speak meaningfully of improved livelihoods without addressing gender and poverty issues. Throughout the network where words like appropriate or effective are seen it should be assumed that this also means appropriate in terms of gender and poverty.


National Water Act
Effective 50.0
Ineffective 50.0
Catch. Man. Institutions
Effective 39.7
Ineffective 60.3
Water Services Act
Effective 50.0
Ineffective 50.0
Local Government Legisl ...
Effective 50.0
Ineffective 50.0
Physical Environment
Favourable 50.0
Unfavourable 50.0
Revenue
High 50.0
Low 50.0
Local Institutions
Effective 40.6
Ineffective 59.4
Climate
Wet 50.0
Dry 50.0
Appropriate Land Manag ...
True 50.0
False 50.0
Investment
High 43.1
Low 56.9
Community Institutions
Effective 44.4
Ineffective 55.6
Sustainable Resource Base
Good 41.2
Bad 58.8
Supply Infrastructure
Functioning 18.8
NonFunctio ... 81.2
Ownership and Awareness
High 45.5
Low 54.5
Comm. Skills and Capacity
Strong 34.8
Weak 65.2
Technology
Appropriate 50.0
Inappropriate 50.0
Management and O&M
Good 33.9
Poor 66.1
Redistribution and Equity
Strong 23.1
Weak 76.9
Economic environment (...
Good 50.0
Poor 50.0
Com. acc. to productive ...
High 17.7
Low 82.3
Ability to use water prod ...
High 17.9
Low 82.1
Access to Land
High 50.0
Low 50.0
Comm. acc. to domestic ...
High 12.3
Low 87.7
Production
High 13.5
Low 86.5
Health
Good 27.1
Poor 72.9
Sanitation
Good 50.0
Poor 50.0
Affordability
High 50.0
Low 50.0
Improved water based livelihoods
True 16.8
False 83.2
Hospitals, endemic disea ...
Good 50.0
Bad 50.0
Hygiene awareness
High 50.0
Low 50.0

Proposed focus themes for research in the Sand River Catchment, South Africa

On the basis of manipulation of the Bayesian Network the following research themes were identified:

Theme 1: Promoting productive uses of water

This was proposed as the major theme for a programme of Participatory Action Research (PAR) in the Sand River Catchment. The theme will promote the sustainable use of water for productive purposes from systems or resources that also support domestic water supply. Project activities under this theme will:

- promote the productive use of water and contribute to improved livelihoods through impacts on food security, and income generating opportunities
- complement current WSS efforts that focus on improving health (through providing access to a basic level of domestic water supply, sanitation and hygiene awareness) by addressing the potential of productive uses of water to improve the viability of service provision.
- meet a need identified in the Save-the-Sand feasibility study to promote research into the understanding of the water use and economic potential of small-scale economic activities in the catchment.
- address sustainability issues, especially the risks of conflict and inefficiencies through unsustainable development. The theme will complement project activities in India, where the overexploitation of groundwater for productive uses by smallholders has had severe negative impacts on domestic water supply. It is only suggested that only where productive uses of water play an important role in peoples livelihoods will the incentives for large-scale participation in catchment management exist.

The theme will address the use of water for productive purposes from systems or resources that also support domestic water supply. PAR will be carried out with communities and institutions in the SRC. Communities are to be identified following further consultations and baseline surveys.

Work under theme one is intended to contribute the major part of the project in South Africa. In addition,a second parallel research theme was also proposed.

Theme 2: Emerging lessons from institutional reform in catchment management in South Africa

This second parallel research theme will concentrate on distilling and disseminating emerging lessons from pilot integrated catchment management projects and the establishment of catchment management institutions, focusing on the role of WSS in this process. It will particularly focus on lessons from the Sand/ Nkomati for other catchments and countries elsewhere including India.

DWAF Mpumulanga

The outcomes of the AWARD workshop, particularly the Bayesian Network and prioritised research themes were subsequently presented at a meeting in the DWAF Mpumulanga regional office on 7 February 2001 attended by Magda Ligthelm and Nancy ? The focus on promoting productive uses of water through participatory action research was supported and DWAF would like to be involved and participate. This should focus on both small-scale irrigators and use of productive use from reticulation systems, and also address quality issues. Key points arising were:

- both the Nkomati and the Olifants are water-stressed catchments and re-allocation to accommodate new users is a key issue and need, as well as meeting the reserve requirements.
- the formation of a water users association in the lower Nkomati that is multi-sectoral and is broaden than just agricultural users.

- a previous study on catchment management institutions in the Nkomati by Woodhouse and Hassan is relevant.
- The Nkomati CMA proposal has been submitted and a governing board may be in place in around 9 months. Then CMCs will be formed. A new CM strategy will be drafted shortly.
- WSDPs are currently being prepared but only 5% have been submitted in old format. Are trying to link CM strategies (the startegic plan for water resources) and WSDPs (the strategic plan for water services), and need to links WSAs abd CMAs.
- A socio-economic study focusing on water use in transboundary areas (South Africa, Mozambique abd Swaziland) by AFRIDEV may be relevant
- An MSc study on empowerment of users in the Nkomati has also recently been completed (Canadian?).
- The dense settlements project is looking at water quality problems asscoiated with dense settlements, and includes work in Acornhoek on waste disposal.
- Action research should be prioritised on the basis of socio-economic status of users or potential users, economic returns, the potential increase in water use and the potential for successful pilot activities.
- Should consider importance of tourism, and also traditional healers in the study areas.
- Need to ensure participation of DPLG, DWAF HQ and regional offices as well SSP.

DWAF, Pretoria

A workshop was subsequently held in the DWAF Pretoria office on 9 February 2001. Participants included DWAF staff in the national offices from catchment management (Eustathia Bofilatos, Azwi Nelwamondo and Derek Weston) and water services directorates (Sorrious Manele, Maxima Ranamane, and Sanjay Wijesekera), Washington Tunha from DWAF Northern province, Peter Smith (DFID Water Sector Field Manager), Minnie Venter-Hildebrand (Mvula Trust), and Anthony Turton (AWIRU, University of Pretoria).

This workshop was held to discuss the proposed research priorities, the role of DWAF and other organisations, and a dissemination strategy for the project. John Butterworth (project coordinator - Natural Resources Institute), James Rhoda (AWARD) and Patrick Moriarty (IRC International Water and Sanitation Centre - facilitator) presented the findings of earlier consultations held in South Africa including the Bayesian Network and proposed research themes.

After a stimulating discussion during which many interesting issues were raised, these two themes and particularly the focus on promoting productive uses of water, were unanimously supported by those present at the meeting. Some of the key issues arising in the discussion were:

- the need for the research to inform policy, particularly as the current legislative, policy and regulative framework focuses on meeting basic needs, and does not yet adequately address the role of productive uses of water in the livelihoods of the poor.
- the potential for improved cost recovery through implementing a demand responsive approach that includes meeting the need for water for productive use.
- the need to strengthen the ability of rural communities to access allocations for productive purposes.
- the need for the research to link into the development of the catchment management strategy. Work on this will begin in a couple of months.
- the fact that the proposed focus is consistent with the new National Water Management Strategy.
- the potential for additional funding to facilitate additional DWAF inputs under DFID-support to Water Resources Management (for which the timescale of funding is compatible i.e. to March 2004).
- the importance of involvement of local-level DWAF staff and local government.
- the need for tools, guidelines and other research outputs to be targeted at local government and other intermediate-level organisations (WSAs, WSPs, CMAs, WUAs etc) as well as training organisations (such as National Community Water and Sanitation Training Institute).

- the potential for dissemination using the AWIRU website and possibilities of linking graduate student research projects to the study.
- the ability of the project to contribute to implementation of the key principles of equitable, efficient and sustainable water use.
- the challenge to the project of relating different institutions and planning structures across catchment management, water services, and rural development.
- the need for continued consultations with pilot projects linking development of WSDPs with catchment management (Northern Cape?), the Mvula Trust pilot project in Kwazulu Natal, and the Strategic Environmental Assessment Team at DWAF.

Given the strong level of interest and support expressed by DWAF, the following action points were agreed:

1. To delay competition of the inception report (from 18 February to 16 March 2001 subject to DFID approval) to provide further time for DWAF to hold internal consultations. These will address the involvement of DWAF in the research activities, and the need for any additional resources that may be applied for under DFIDSA support to DWAF (*DWAF to prepare a letter of support for the delay to be sent to DFID as soon as possible)*
2. To consult with the Strategic Environmental Assessment team at DWAF *(John Butterworth and Kgopotso Mokgope by 16 February 2001)*
3. To discuss the project with the Chief Director and other staff as appropriate in the Northern Province regional office (*John Butterworth and Kgopotso Mokgope as soon as possible)*
4. To prepare a draft inception report for circulation within DWAF and to meeting attendees *(John Butterworth by 16 February 2001)*
5. To prepare a short summary of the meeting and agreed actions *(John Butterworth and Kgopotso Mokgope by 12 February)*

Strategic Environmental Assessment Team, DWAF

John Butterworth, Kgopotso Mokgope and Minnie Venter-Hildebrand (Mvula Trust), subsequently met members from the Strategic Environment Assessment (SEA) team at DWAF (Mike Warren, Peter Nelson and Steve Horak) on 12 February 2001. As a result of a pilot SEA project in the Mhlathuze Catchment (supported by DFID) 'water for rural development' was identified as a possible 'spin-off' theme for follow-up work and a draft scoping paper has been prepared by Dirk Versfeld. Proposed work will focus on the strategic issues relating to the use of water for productive purposes in rural areas. It was agreed that given the common interests in productive use of water, links should be maintained between this initiative and proposed research under this project and by Mvula Trust (see below).

Mvula Trust

The proposed research was also discussed in detail with Minnie Venter-Hildebrand at Mvula Trust. Mvula are currently involved in a pilot scheme in KwaZulu-Natal to provide higher levels of service and enhance livelihoods through water use, and are leading the preparation of a proposal to scale up work on using water for productive purposes and increasing livelihoods. The research outputs from the WHIRL project are considered important to support this proposed project, which may include implementation in the neighbouring district. Links will be maintained with these initiatives.

Local government

Consultations have not yet been held with local government, and this is recognised as a priority activity for the coming weeks. The Sand River Ccatchment falls within the area of the new Eastern District Council and local government structures are currently in a state of transition with few staff in place. The new district comprises two municipalities, Bushbuckridge and Drakensburg. The research

will be discussed as soon as possible with the Acting Municipal Manager, Bushbuckridge Municipality and the Acting District Municipal Manager, Eastern District Council. As local government staff are put in place, the research will seek to work closely with appropriate officers.

Appendix 3 Summary of interviews with regional and national actors in Kenya

This appendix includes a summary of project consultations carried out in Kenya during the period 22-23 January 2001. In general interviews were informal and unstructured. Interview reports have been arranged so that general background to the organisation, and to its perception of the water sector (or its part of the water sector) are presented first. This is followed, under the heading 'main issues', by those areas where in the interviewees opinion there was evidence of existing conflict and where new tools/approaches were needed.

Interview No 1: NETWAS International
Beth Karanja, Head of Training & Isaack Onenga, Deputy Director

The Network for Water and Sanitation International (NETWAS) is a regional resource centre for training, applied research, networking and information dissemination in the water and sanitation sector. Training courses regularly attract participants from East, West and Southern Africa.

Issues highlighted were the failure to co-ordinate relevant actors in relation to WSS and WRM, and lack of an effective framework for IWRM at national or local level. IWRM hasn't been a major issue for the WSS sector until the recent drought that led to water shortages (mainly in urban areas) and outbreaks of disease such as typhoid (following the return of the rains). In addition there is a general increase in conflict over water resources in some agro-climatic areas (e.g. between livestock, irrigation, and domestic uses). Examples cited were:

- In Western Kenya, WSS projects in Nandi district using surface water supply sources were affected by upstream pollution due to poor sanitation practice in an upstream district. In response the project was expanded to encompass the headwater areas in the neighbouring district, including improved sanitation.
- A shift towards alternative sources in urban and peri-urban areas for example the use of groundwater by hotels and other businesses in Nairobi due to unreliable PWS.
- Increased development of private boreholes for irrigation water in peri-urban areas. In the absence of controls or incentives to manage water resources there are concerns about falling groundwater levels. However there is currently no monitoring system of either the resource or abstractions.
- Settlements along pipelines are increasingly demanding a share of the resource flowing through them, leading to increased pressure on sources supplying cities such as Nairobi.

At national level there is a move towards increased co-ordination between sectors and development of new water policy, however corruption and inefficiency at high levels may limit such efforts. It was felt that the concept of IWRM has been on the table for a while, and talked about at these levels, but with little coming through at the field level. It was felt that other efforts would be better focused at a district or local level. This is the critical scale anyway. Conflict is often local and a river basin model assumes a degree of linkage that seldom exists in semi-arid areas.

As a training organisation, NETWAS have identified IWRM as an area of interest for the WSS sector but feel constrained by a lack of tools and difficulty in identifying clear entry points and roles. Priorities identified, which should focus on areas with high water demand or genuine resource shortage/conflict were:

- Participatory tools and methodologies for WRM particularly development of platforms for interaction of different user groups
- Tools for resource assessment, identification of management options, and monitoring which can be used at the 'lower levels' by projects, NGOs and local government to improve IWRM in the absence of effective basin or national level management.

- Tools to help water supply sector actors to take a wider view of water use and integrate productive uses into their schemes.

In addition to training there is a need for advocacy materials to raise awareness of the need for WRM in WSS programmes. This should be targeted at all levels of society, and should aim to generate a genuine grass roots demand for better management of water resources.

Interview No 2: WSP and African Water Resource Management Forum
Piers Cross, Michael Mutale

WSP East and Southern Africa is a regional organisation focussing on policy reform, improved investment and, increasingly, on information dissemination. WSP has no money of its own but acts as a facilitator between governments, donors, and other financiers. The East and Southern Africa office currently concentrates on 6 countries in the region.

The African Water Resource Management Forum (AWRMF) is a new body (est. 1999) hosted by WSP and currently headed by Mike Mutale. It is mainly concerned with improved networking between water resource professionals in Africa.

Priorities for the research work suggested by WSP and AWRMF include
- Groundwater management and in particular the vulnerability of shallow wells to falling water tables.
- Identification of the proper institutional structures for effective IWRM – one area of particular interest are 'water parliaments', that is the democratisation of the allocation and management process.
- Juxtaposition of new structures in relation to strong moves towards decentralisation but with often week local government
- The need to recognise that legal frameworks backed by regulation and enforcement may be more difficult to establish in some countries than in others

The AWRMF is actively promoting further research in line with the project objectives, and would like to see the work focus on a few key issues. Both the WSP and the AWRMF will be happy to help provide an opportunity to disseminate key findings within SSA.

Interview No. 3: Regional Land Managment Unit (RELMA)
Rolf Winberg

RELMA is a SIDA funded initiative that aims to promote networking at a regional level and to pilot innovative approaches to soil and water conservation and management. As well as an organisation focussing on soil and water conservation, RELMA are now increasingly involved in catchment management including projects with a WATSAN focus. Projects include piloting an approach to catchment and environmental management in Lake Victoria. They co-ordinate a new rainwater utilisation network in East and Southern Africa which in future will links to similar efforts in India aimed at holistic use of rainwater in response to a GWP request. They stress the need to focus on work at lower level with communities.

Appendix 4 Summary of interviews with regional and national actors in Tanzania

This appendix includes a summary of project consultations carried out in Kenya during the period 24-26 January 2001.

Interview No. 4: NETWAS Tanzania
Eng. Ryubha Magesa, Head

NETWAS Tanzania is a branch of NETWAS International focussed solely on Tanzania. It has been recently set up (in 1999) and is currently preparing new training programmes which it hopes to instigate using local expertise as far as possible.

Main issues:

IWRM is an issue in Tanzania in some specific locations including the Pangani basin, where there has been competition between water for irrigation and domestic use. In addition there has been considerable conflict between upstream irrigators and downstream hydro-power generation, exacerbated by the recent drought.

The current focus for domestic water supply is mainly focussed on groundwater, which is sometimes difficult to find in drier areas.

Previous approaches (including free water) have failed and services deteriorated rather than improved.

New government policy relies on community initiation, including a commitment to contribute at least 5% of capital costs and all O&M costs.

The new approach to RWSS will be demand driven and participatory, identifying need and co-ordinating with other departments. Where a suitable source exists rural water supplies will be expanded to deal with livestock and backyard irrigation requirements in addition to domestic.

Current issues of particular relevance for the WSS, and ones where NETWAS intends to become active include:

- Cost recovery in WSS - people were used to free water and have low income, WSS as currently implemented won't necessarily contribute to income therefore raising money for cost recovery is a serious potential problem
- Private sector participation to increase capacity – Tanzania is firmly committed to a withdrawal of government from service provision, a role that will be taken up by the private sector and communities themselves
- Retraining government staff – as part of its new function Government will act as facilitator and regulator. Currently staff are trained mainly as technicians, and will need large scale re-training and capacity building to undertake their new roles.

Interview No. 5: Ministry of Water
Gabriel Lwakabare, Project Co-ordinator, Rural water supply and Sanitation project; Small towns water supply and sanitation project

The World Bank funded RWSS project is aiming to develop safe and adequate water supplies for rural areas and small towns. Major urban centres such as Dar es Salaam and regional capitals are not being dealt with.

In the past community schemes have failed for reasons including source failures (i.e. resource failure) and the collapse of institutions and facilities surrounding the water supply. To try to tackle these past failures the RWSS programme is using a DRA based approach. Currently baseline social assessments

have been carried out in 3 districts, with an environmental assessment to follow. The programme is starting in 3 districts, and will add 3 new districts each year.

In rural areas the programme is mainly relying on groundwater – developed using shallow and deep wells, and is shunning sources that require treatment. However, where the situation is very favourable the programme may consider small dams. The community has to contribute in cash or kind. As groundwater is the principal source, the main resource dangers concern pollution and depletion.

The project has recognised the need to protect the water source but does not extend this to whole basin planning. Rather the local source, where practical, is protected using techniques such as planting trees, banning farming, and constructing fences. In theory the DRA extends to providing sources for uses other than domestic – however in practice sources are inadequate for this in 2 out of 3 districts.

In Small towns the project is taking a different approach as due to problems of implementing a community based approach in such heterogeneous areas. Water user associations and private sector involvement will be the main approaches tried. In addition there will be an increased focus on sanitation, particularly appropriate low cost technologies. The programme is currently working in 19 small towns in 6 districts.

Main issues:

In the Kilimanjaro area there is existing competition over access to domestic water, in other areas there is competition between irrigation and domestic supply. In the Rufiji basin competition is mainly between downstream hydropower generation and upstream irrigation, due mainly to the design of hydropower schemes that did not take increasing irrigation demand into account. Currently there are many problems linked to widespread illegal abstraction and environmental degradation which are affecting flows.

A new water policy has been developed, that is largely based on a DRA approach. This new policy envisages a revised role for government, that in turn requires large scale development of new capacity, particularly at district level. People need to be trained in demand assessment, management, procurement etc. There is a clear role here for organisations such as NETWAS

While the RWSS project is aware of the World Bank River Basin Management – Small scale irrigation Improvement (RBM-SIIP) project there is not real co-ordination between the two.

Interview No. 6: Institute of Resource Assessment – University of Dar es Salaam
Prof. Mark Mujwahuzi

In Tanzania there is a theoretical priority in resource allocation and development for domestic/drinking water, however, in reality considerably greater resources are put into irrigation (food security) and other (such as hydropower) schemes. New policies focus on energy and food security by 2025, with hydropower and irrigation respectively being key factors in achieving these ends.

Within the water sector existing responsibilities are fragmented. There is a need for an integrating body to implement IWRM, and to avoid currently overlapping fields of authority. The new water resource policy aims to take a basin approach but key resources (financial and human) are lacking. In general there is a respect for the ruled of law in Tanzania, and some elements of the necessary regulation are already in place (such as a system for allocating water rights). As a result both legislation and policy are reform are areas where it is worth making improvements – in a way that it may not be in countries where the rule of law is less well established.

Main issues

The water supply for Dar es Salaam comes from the Morogoro mountains. Water resources issues affecting it are mainly to do with siltation and chemical pollution coming from commerical agriculture (e.g. sisal processing) in the headwaters. In addition there is a growing problem of contamination from mercury used in from artisanal gold mining.

In addition to these quality issues, there is a general issue of falling quantity available. Per capita water availability had gone down in urban areas but up in rural (1967-97). This is more to do with failing infrastructure in urban areas that to do with absolute resource shortage.

Interview No. 7: Ministry of Water – Water Resources Division
Mwakalinga, Senior Hydrologist, River Basin Management

Introduced World Bank supported River Basin Management (RBM) and Small scale Irrigation Improvement (SSIP) projects which are in their 4th year of operation. The projects aim to strengthen government capacity to manage water resources using an integrated approach. Currently, there is a lack of co-ordination, but the projects are reviewing water policy and institutional frameworks with an aim to improve this in the near future. In addition the projects are helping to rehabilitate the hydrometric networks in the two pilot basins to provide the necessary data to take management decisions.

Currently the projects are being piloted in the Pangani and Rufiji river basins. Both basins have a pattern of irrigation upstream of reservoirs and hydropower plants. A rapid water resource assessment (WRA) has shown conflict in these basins.

Under current legislation the Principal Water Officer (PWO) – based in Dar es Salaam issues water rights for large scale abstraction from rivers of national importance, while the Basin Water Officers (where they exist) licence smaller abstractions from regional water bodies.

Main issues:

On the great Ruaha river (in the Rufiji basin) there is conflict between irrigation, hydropower and environment. In a story that almost all interviewees mentioned during last year drought it was necessary to sacrifice 15MW of generation potential in order to ensure that a minimum amount of water was available for a rare species of toads ('spray toads').

Perceptions are often as large a problem as reality. A DFID funded study on the upper Ruaha found that wet season flows were not being adversely affected by irrigation, however they had problems convincing TANESCO – the national power utility – of this.

In theory a person of community must have a water right to be allowed to take water form a pump or irrigation 'furrow'. However, in general smallholder irrigators don't hold water rights. Currently efforts are being made to persuade communities in the Kilimanjaro region to accept them, but there is resistance. Tanzania has a very long history (stretching back into pre-history) of indigenous irrigation, and people do not understand why they must now pay for a permit for something their ancestors have always seen as a right. The project is trying to create water users associations as it is not practical to administer large numbers of small water rights. As part of this policy they are trying to reduce the overall number of off-take points, so as to facilitate monitoring of those that are left.

In general domestic use is not a problem as regards quantity of resources, and is mainly a supply issue. Traditionally drinking water is collected from irrigation furrow, and represents a tiny percentage of the flow in these. However there are some quality problems for example high levels of fluoride and iron in some areas.

Currently stakeholder involvement is limited. The Water Officer is advised by a board of 8 people (four from government, four from 'civil society'). However the board only has advisory role on allocation issues. Legally the water officer is therefore powerful, however in reality due to lack of resources his power is often limited.

Interview No. 8: Ministry of Water – Water Resources Division
Dutingo Luhumbika – Director; Julius Mihayo Assistant Director - Hydrology

Rapid water resources assessment highlighted the importance of competition for water resources in the Rufiji and Pangani basins. These two basins are the only ones out of Tanzania's nine major basins that currently have a functioning authority, however, the Ministry is trying to extend similar structures to o other basins including Ruva, which supplies Dar es Salaam.

Main issues

There is a lot of conflict, particularly in Pangani. In both basins problems exist between all uses – livestock, irrigation, domestic and industry. The Pangani also has a concentration of industry which uses more water and can be polluting

The water use in these systems is very complicated, and awareness of legislation is low. The projects work at a basin level, aiming to create awareness of resource management needs and issues from the bottom up.

Conflict over domestic resource is primarily a local issue. Water is taken in 'furrows' that tap the main river and then run for up to 10km through as many as four villages. Conflict revolves around competing requirements for livestock, domestic, and irrigation within these furrow systems. The project aims to form water user associations to manage the irrigation furrows, and who will then interact with the basin board on issues related to overall water consumption.

The intention is that basin water boards should be autonomous and self-financing. However it is problematic to get people to pay, especially upstream users who have traditionally used the source anyway. Downstream users are in general more happy to pay, as they see payment as one means to guarantee supply. In general power and industry are also willing to pay, and it is this part of the system that is easiest to regulate.

Interview No. 9: Institute of Resource Assessment – University of Dar es Salaam
Prof. James O. Ngana – Co-ordinator Pangani Project

The Pangani project is supported by NORAD and is being carried out in partnership by the University of Dar es Salaam and the Technical University of Norway. It is mainly looking at land use, water resources and socio-economics in an integrated way. It is currently concentrating on investigation conflict, but also needs to start looking at the overall dynamic or land and water management.

The water board in Pangani is making some progress but has many problems to tackle. In particular people don't see logic of paying for water that they've used for hundreds of years. In addition the board has yet to become truly participatory, and finding mechanisms for the representation and empowerment of small-scale water users on the board remains a priority.

Main issues:

The main problems and conflicts exist between hydropower and irrigation, and there is no real issue of domestic water being the cause of conflict. There are some problems in dry areas – where rainwater harvesting is being looked into.

In Tanzania water supply is not being given priority, in many towns including Dar es Salaam the water supply is disastrous. Most schemes were built in 1970s and have never been revisited or improved since. This is at least partly due to what used to be government's role in supporting all infrastructure for which it was completely under-resourced

Currently most drinking water is from surface sources, but there is increasing use of groundwater. In Dar es Salaam the lack of an efficient distribution network is leading to widespread private development of groundwater, with people resorting to deep and shallow wells, and in some cases selling the water form their wells. The rapid rise in the use of shallow wells is leading to an increased risk of groundwater contamination from pit latrines.

Appendix 5 Revised logical framework

Narrative summary	Measurable indicators	Means of verification	Important assumptions
Goal: Improved water resources management	Improved provision of safe water supplies for the consumptive and productive activities of the *poor*	National data and sector studies	
Purpose: *More effective* institutional and operational solutions for water resources management adopted that promote improved access of the *poor* to safe water supplies for consumptive and productive use.	Uptake reflected in guidelines for development and management of watersheds and *WSS* in India, S Africa and elsewhere, and tools in use on at least 2 major development projects by Mar 2005	GoI and RSA policy documents Project Reports Consultation	(Pupose to goal) Favourable political environment
Outputs: 1. Assessment of existing mechanisms, in water-stressed areas (quantity and quality) with competition for water between multiple uses, to promote more sustainable and equitable access for the *poor* to water supplies for consumptive (drinking and other domestic uses) and productive use (inc. small-scale irrigation, livestock, SMEs).	Comprehensive review capturing worldwide experience of best-practice and emerging approaches (inc. community-based management, regulatory approaches, new institutional structures and economic instruments) by *May 2001* Analysis of policy and institutional conditions for uptake by *May 2001*	Project reports Conference proceedings Journal papers Project reports	(Output to purpose) Governments and donors continue to invest in participatory watershed development projects and rural water supply and sanitation, and are willing to adopt more integrated approaches. Government measures progressed to reduce the negative influences of those with vested interests in water shortage.
2. Key findings from piloting of approaches that integrate water supply and sanitation with watershed development and management, and synthesis of tested methodologies.	Documented outcomes (hydrological, institutional, socio-economic) of pilot case studies focused on poor communities within 2 watersheds in India and 1 in S Africa by Mar 2004 Documentation on piloting of methodologies for site selection, assessment of resources, issues and problems (hydrological, institutional, socio-economic), participatory decision-making, implementation, monitoring and evaluation by Mar 2004. Demand assessment in 5 countries (inc. S Africa, & India) and identified uptake pathways	Project reports on outcomes of pilot case studies Conference and journal papers Project reports on testing of methodologies Local draft guidelines Project reports	

	by Dec 2000.		
3. Demand-led planning tools developed, validated and disseminated with guidelines for use that promote and support, in appropriate circumstances, the integration of water supply and sanitation with watershed development and management	Tools and guidelines developed in response to demand, and validated in collaboration with long-term participatory watershed development projects in at least 2 watersheds in different settings in India and 1 in S Africa by March 2004. Dissemination of tools/guidelines through identified uptake pathways in 5 countries by March 2004	Planning tools/guidelines (e.g. manual, electronic publication or toolbox) Preliminary and continuous dissemination through project website Conference/journal papers focused on replication and policy-level	
Activities: 0 Inception activities, and continued project management			
0.1 Initial project planning meeting of lead professionals to build South-South collaboration and refine scope of work	Lead professionals from NRI, BAIF and AWARD meet by end July 2000	Project inception report	
0.2 Stakeholder assessment, and consultations with key stakeholders in India, S Africa and other targeted countries	By Dec 2000, linkages developed with potential partner development projects (e.g. Save the Sand project in S Africa), key stakeholders identified and consulted in S Africa, India and 3 other identified target countries in SSA/Asia, and complementary activities by others identified and linkages developed.	Project inception report	
0.3 Inception workshop	All team members meet by end Sep 2000, further activities and programme finalised and agreed by project partners and key stakeholders/ host governments.	Project inception report	
0.4 Progress meetings with DFID	Initial meeting by Oct 2000 and further meetings as appropriate	Project inception report	
0.5 Regular progress reporting, and annual reviews and planning	Summary progress reports submitted to DFID by end-Mar and end-Sep	Six-monthly progress reports to DFID	

meetings	Research findings synthesised and reported on annual basis (end of years 1,2 and 3) Annual review and planning documents	Annual project research reports Project reports	
0.6 On-going project management and monitoring	Correspondance, financial records	Files held by NRI, BAIF and AWARD including monthly progress reports	Timely disbursement of funds to NRI and collaborators
1.0 Review and consultations to identify intervention options			
1.1 Literature search and review	Comprehensive review by *May 2001*	Literature review	
1.2 Consultations with with key specialists and stakeholders	Consultations held by *May 2001*	Project reports	
1.3 Workshops including representation by policy-makers to validate findings and identify realistic local options	2 workshops held in India and S Africa by *Aug 2001*	Workshop reports	Policy-makers, key stakeholders and specialists willing to attend and participate actively in workshops.
2.0 Pilot case-study fieldwork (output 2 - activities replicated in each watershed)			Implementing agencies of development projects are willing to participate in piloting of new approaches.
2.1 Analysis and consultation to identify watersheds, sites and target communities (including use of poverty criteria) and agree working principles	Rapid analysis of secondary and existing project data by *May 2001* Consultations/workshops with local-level stakeholders leading to identification of sites in 2 watersheds in India and 1 in S Africa, and agreed working principles for collaboration with existing development projects by *Jul 2001*	Project reports Project reports	Individuals and communities willing to participate in research and influences of those individuals/ elites with negative interests in promoting water shortages can be minimised.
2.2 Water audits for selected watershed - (e.g. assessment of supplies, demands, trends etc)	Analysis by *Oct 2001* for identified watersheds	Project reports	Data readily made available by government and other organisations
2.3 Other baseline data collection and analysis including secondary (i.e. census data etc) and primary data	Analysis by *Oct 2001* for identified watersheds	Project reports	Data readily made available.

(social, economic, bio-physical)			
2.4 Option selection including participatory decision-making	Workshops/ meetings/ consultations/ interviews to identify agreed options by Nov 2001, and piloting process	Project reports, including reports of meetings	Individuals and communities willing to participate in research
2.5 Piloting of interventions in collaboration with RWSS/ watershed projects	Implemented of new approaches underway by Mar 2002	Project reports	
2.6 Monitoring of outcomes, and establishment of sustainable monitoring mechanisms beyond project timescale	Monitoring and study to Mar 2004	Project reports	
2.7 Validation of outcomes and piloting process	2 workshops held in S Africa and India by by Jan 2004	Workshop reports	Invitees willing to attend and participate activiely in workshops
3.0 Development of planning tools and guidelines			
3.1 Consultations to a) assess demand (needs, constraints, opportunities) for more integrated approaches and for planning tools/ guidelines and, b) to identify possible uptake pathways	Demand assessed in India, S Africa and 3 other identified target countries by Dec 2000 Uptake pathways in India, S Africa and 3 other target countries identified by Dec 2000	Project inception report Project inception report	
3.2 Draft planning tools/ guidelines developed by project team, through multidisciplinary review of best-practice	*Initial* draft tools/ guidelines developed by Nov 2001	Draft guidelines in project reports and website	
3.3 Preliminary elements of planning tools/ guidelines tested in collaboration with on-going RWSS/ watershed projects	Draft outputs tested by Oct 2003	Project reports and website	
3.4 Planning tools/ guidelines modified by project team	Tools/ guidelines modified throughout piloting phase	Updated guidelines in project reports and website	
3.5 Planning tools/ guidelines validated	Workshops and consultations held by Dec 2003	Workshop proceedings	Invitees willing to attend and participate actively

through workshops and consultations with identified stakeholders			in workshops
3.6 Planning tools/ guidelines finalised in response to feedback	Tools/ guidelines finalised by Jan 2004	Project reports Manual, targeted at project implementing agencies, incorporating planning tools and guidelines Final project report	
3.7 Planning tools/ guidelines disseminated and promoted using identified uptake pathways. These may include presentations at conferences and distribution through electronic media, to influence policy and practice	Outputs disseminated by Mar 2004 within S Africa, India and other targeted countries using identified uptake pathways	Final project report	
Inputs	Performance budget		
Personal emoluments Capital costs Other charges VAT Total costs	£ 227556 3400 267039 87149 585145		

Appendix 6. Revised work plan, staff inputs and locations for project work

PROJECT TITLE
Integrating drinking water needs in watershed projects
YEAR OF ACTIVITY (eg; 00/01)
00/01

ACTIVITY	A	M	J	J	A	S	O	N	D	J	F	M
1. Inception activities, and continued project management												
1.1 Initial project planning meeting				✓								
1.2 Stakeholder assessment and consultations				✓	✓	✓	✓	✓	✓			
1.3 Inception workshop						✓						
1.4 Progress meetings							✓					
1.5 Regular progress reporting									✓			✓
1.6 On-going project management and monitoring				✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Review and consultations to identify intervention approaches												
2.1 Literature search and review						✓	✓	✓	✓	✓	✓	✓
2.2 Consultations						✓	✓	✓	✓	✓	✓	✓
2.3 Workshops												✓
3. Pilot case-study fieldwork												
3.1 Analysis and consultation to identify watersheds….										✓	✓	✓
3.2 Water audits												
3.3 Other baseline data collection and analysis												
3.4 Option selection												
3.5 Piloting of interventions												
3.6 Monitoring of outcomes												
3.7 Validation of outcomes and piloting process												
4. Development of planning tools and guidelines												
4.1 Consultations to assess demand and identify uptake pathways				✓	✓	✓	✓	✓	✓			
4.2 Draft planning tools/ guidelines developed												
4.3 Preliminary elements of planning tools tested												
4.4 Planning tools/ guidelines modified												
4.5 Planning tools/ guidelines validated through workshops												
4.6 Planning tools/ guidelines finalised												
4.7 Planning tools/ guidelines disseminated and promoted												

OVERSEAS TRAVEL	DURATION (DAYS)											
	A	M	J	J	A	S	O	N	D	J	F	M
By John Butterworth												
To India				5		10		10				
South Africa				5								
Other target countries						10		10				
By Sabine Gündel												
To India												
South Africa												
By Jim Hancock												
To India						5						
South Africa												
By Elizabeth Robinson												
To India						5						
South Africa												5
By Charles Batchelor												
To India						5						
South Africa												
By John Soussan												
To India						5						
South Africa												
By BK Kakade												
To NRI, UK												
South Africa				5								
By YV Malla Reddy												
To NRI, UK												
South Africa												
By AJ James												
To NRI, UK												
South Africa												
By Sharon Pollard												
To NRI, UK												
India												
By Kgopotso Mokgope												
To NRI, UK												
India												

PROJECT TITLE
Integrating drinking water needs in watershed projects
YEAR OF ACTIVITY (eg; 00/01)
01/02

ACTIVITY	A	M	J	J	A	S	O	N	D	J	F	M
1. Inception activities, and continued project management												
1.1 Initial project planning meeting												
1.2 Stakeholder assessment and consultations												
1.3 Inception workshop												
1.4 Progress meetings												
1.5 Regular progress reporting						✓						✓
1.6 On-going project management and monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Review and consultations to identify intervention approaches												
2.1 Literature search and review	✓	✓										
2.2 Consultations	✓	✓										
2.3 Workshops			✓		✓							
3. Pilot case-study fieldwork												
3.1 Analysis and consultation to identify watersheds….	✓	✓	✓	✓								
3.2 Water audits	✓	✓	✓	✓	✓	✓	✓					
3.3 Other baseline data collection and analysis	✓	✓	✓	✓	✓	✓	✓					
3.4 Option selection					✓	✓	✓	✓				
3.5 Piloting of interventions									✓	✓	✓	✓
3.6 Monitoring of outcomes									✓	✓	✓	✓
3.7 Validation of outcomes and piloting process												
4. Development of planning tools and guidelines												
4.1 Consultations to assess demand and identify uptake pathways												
4.2 Draft planning tools/ guidelines developed				✓	✓	✓	✓	✓	✓	✓	✓	✓
4.3 Preliminary elements of planning tools tested									✓	✓	✓	✓
4.4 Planning tools/ guidelines modified									✓	✓	✓	✓
4.5 Planning tools/ guidelines validated through workshops												
4.6 Planning tools/ guidelines finalised												
4.7 Planning tools/ guidelines disseminated and promoted												

OVERSEAS TRAVEL	DURATION (DAYS)											
	A	M	J	J	A	S	O	N	D	J	F	M
By John Butterworth **To** India South Africa		15 	 15		 15		15 		 10	10 		
By Sabine Gündel **To** India South Africa												
By Jim Hancock **To** India South Africa		10 	10 10									
By Elizabeth Robinson **To** India South Africa	5	10 			 10				10 			
By Charles Batchelor **To** India South Africa		10 	 10		 5		 5					
By John Soussan **To** India South Africa		10 			 5	5 						
By BK Kakade **To** NRI, UK South Africa												
By YV Malla Reddy **To** NRI, UK South Africa					 10							5
By AJ James **To** NRI, UK South Africa					 10							5
By Sharon Pollard **To** NRI, UK India		 10										
By Kgopotso Mokgope **To** NRI, UK India		 10										5

PROJECT TITLE
Integrating drinking water needs in watershed projects
YEAR OF ACTIVITY (eg; 00/01)
02/03

ACTIVITY	A	M	J	J	A	S	O	N	D	J	F	M
1. Inception activities, and continued project management												
1.1 Initial project planning meeting												
1.2 Stakeholder assessment and consultations												
1.3 Inception workshop												
1.4 Progress meetings												
1.5 Regular progress reporting						✓						✓
1.6 On-going project management and monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Review and consultations to identify intervention approaches												
2.1 Literature search and review												
2.2 Consultations												
2.3 Workshops												
3. Pilot case-study fieldwork												
3.1 Analysis and consultation to identify watersheds….												
3.2 Water audits												
3.3 Other baseline data collection and analysis												
3.4 Option selection												
3.5 Piloting of interventions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.6 Monitoring of outcomes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.7 Validation of outcomes and piloting process												
4. Development of planning tools and guidelines												
4.1 Consultations to assess demand and identify uptake pathways												
4.2 Draft planning tools/ guidelines developed												
4.3 Preliminary elements of planning tools tested	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.4 Planning tools/ guidelines modified	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.5 Planning tools/ guidelines validated through workshops												
4.6 Planning tools/ guidelines finalised												
4.7 Planning tools/ guidelines disseminated and promoted												

OVERSEAS TRAVEL	DURATION (DAYS)											
	A	M	J	J	A	S	O	N	D	J	F	M
By John Butterworth **To** India South Africa			20	20			10	10				5
By Sabine Gündel **To** India South Africa												
By Jim Hancock **To** India South Africa												
By Elizabeth Robinson **To** India South Africa			10	10								
By Charles Batchelor **To** India South Africa			10	10								5
By John Soussan **To** India South Africa			10	10								
By BK Kakade **To** NRI, UK South Africa												
By YV Malla Reddy **To** NRI, UK South Africa				10								
By AJ James **To** NRI, UK South Africa				10								
By Sharon Pollard **To** NRI, UK India			10									5
By Kgopotso Mokgope **To** NRI, UK India			10									5

PROJECT TITLE
Integrating drinking water needs in watershed projects
YEAR OF ACTIVITY (eg; 00/01)
03/04

ACTIVITY	A	M	J	J	A	S	O	N	D	J	F	M
1. Inception activities, and continued project management												
1.1 Initial project planning meeting												
1.2 Stakeholder assessment and consultations												
1.3 Inception workshop												
1.4 Progress meetings												
1.5 Regular progress reporting						✓						✓
1.6 On-going project management and monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Review and consultations to identify intervention approaches												
2.1 Literature search and review												
2.2 Consultations												
2.3 Workshops												
3. Pilot case-study fieldwork												
3.1 Analysis and consultation to identify watersheds….												
3.2 Water audits												
3.3 Other baseline data collection and analysis												
3.4 Option selection												
3.5 Piloting of interventions	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3.6 Monitoring of outcomes	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3.7 Validation of outcomes and piloting process								✓	✓	✓		
4. Development of planning tools and guidelines												
4.1 Consultations to assess demand and identify uptake pathways												
4.2 Draft planning tools/ guidelines developed	✓	✓	✓	✓	✓	✓	✓					
4.3 Preliminary elements of planning tools tested	✓	✓	✓	✓	✓	✓	✓					
4.4 Planning tools/ guidelines modified	✓	✓	✓	✓	✓	✓	✓					
4.5 Planning tools/ guidelines validated through workshops								✓	✓			
4.6 Planning tools/ guidelines finalised										✓		
4.7 Planning tools/ guidelines disseminated and promoted											✓	✓

OVERSEAS TRAVEL	DURATION (DAYS)											
	A	M	J	J	A	S	O	N	D	J	F	M
By John Butterworth **To** India South Africa			20	20				10	10	10	5	5
By Sabine Gündel **To** India South Africa												
By Jim Hancock **To** India South Africa								5	5			
By Elizabeth Robinson **To** India South Africa			10	10				5	5			
By Charles Batchelor **To** India South Africa			10	10							5	
By John Soussan **To** India South Africa			10	10								5
By BK Kakade **To** NRI, UK South Africa												
By YV Malla Reddy **To** NRI, UK South Africa										10		
By AJ James **To** NRI, UK South Africa										10		
By Sharon Pollard **To** NRI, UK India												
By Kgopotso Mokgope **To** NRI, UK India			10									

Water, Households and Rural Livelihoods (WHIRL): Promoting access of the poor to sustainable water supplies for domestic and productive uses in areas of water scarcity

A joint Indian, South African and UK research project

Improved access to water supply and sanitation (WSS) is amongst the most pressing needs of poor people in all developing countries. Domestic water supplies and environmental sanitation contribute to livelihoods in a wide range of ways. They are crucial to health and well-being, and can make an important contribution to food production and income generating activities. The management of WSS systems also has important effects on the ecosystems that support livelihoods.

As demand for water rises due to increasing populations, expansion of irrigated areas, and industrial development, many parts of the developing world face increasing water scarcity. Continued reliance upon the traditional approaches to water resources development – such as construction of dams and exploitation of new aquifers to increase supply – is often no longer an option. Demand management and improved allocation of existing resources is increasingly recognised as a more sustainable strategy.

Integrated Water Resources Management

The need for a new approach is reflected in the increasing adoption of Integrated Water Resources Management (IWRM) principles as a guiding framework. IWRM embraces the integrated management of land and all aspects of the water cycle for the sustainable benefit of humans and the environment. In Vision 21 the water and sanitation community signaled acceptance of the IWRM paradigm while asserting that access to an essential minimum (quantity *and* quality) is a fundamental right. As competing uses of water reduce the availability or quality of resources, and raise the cost of future provision of water services, it is increasingly important that the WSS sector play a more active role in IWRM.

The project

The project will identify, assess and promote innovative institutional and operational strategies to increase WSS involvement in IWRM.

India – key focus issues include:

1. Groundwater management – impacts on drinking water supplies of overexploitation of aquifers for irrigation
2. Watershed development potential:
   - to augment groundwater recharge
   - to increase water demands for irrigated cropping
   - for improved human and social capital to address water allocation issues.
3. Economics - costs and benefits of alternative approaches to overcome water shortages
4. Legislation, regulation and policy relating to IWRM objectives.

Natural Resources Institute

AWARD

Water Resources Management Ltd

RDT

BAIF

University of Leeds

Action research is being carried out by NGOs and partner organisations in India and South Africa. There are interesting complementarities and differences between these countries in relation to addressing IWRM. The project will promote the sharing of experiences and approaches to stimulate new thinking and to develop in-country research capacity. South-south collaboration in the research will be a key component, and will be facilitated through regular study visits, exchanges and workshops.

South Africa – key focus issues include:

1. Challenges in building efficient institutions
   - Catchment Management Agencies to manage water resources
   - Water Service Providers to develop and manage water and sanitation services
2. Catchment management & WSS
   - impact of ICM projects on WSS services
   - WSS as an entry point for ICM.
3. Promoting productive activities
   - domestic water supplies for small-scale economic activities (garden irrigation, construction, livestock etc.)

The development of partnerships with projects and institutions able to utilise the research findings, pilot innovative approaches and replicate successful impacts, is a key feature. In India, the project will work mainly in Andhra Pradesh in collaboration with on-going participatory watershed development and WSS projects. In Northern Province, South Africa, it will work with integrated catchment management (ICM) and rural development projects. As well as the action research in these locations, the project will give priority to identifying elements that are replicable elsewhere and will seek to form alliances and promote dissemination in other countries and regions.

Partnerships

Partnerships have been established with:

- 'Save-the-Sand' Project (SSP) – A pilot ICM/ Landcare project in the Sand River Catchment, Northern Province, South Africa
- Andhra Pradesh Rural Livelihoods Project (APRLP) - A watershed development project in southern Andhra Pradesh, India
- Water and Sanitation Programme South Asia (WSP-SA) supporting WSS projects in Andhra Pradesh, India
- IRC International Water and Sanitation Centre's water supply innovation project

The project team would also like to hear from other organisations or individuals interested in the research findings, or researchers addressing similar issues.

Sharing project findings

The project will produce papers, guidelines, training and advocacy materials, to improve integration of WSS issues within programmes incorporating IWRM principles. These will also be disseminated on-line http://www.nri.org/WSS-IWRM

Making contact:

United Kingdom

John Butterworth
Natural Resources Institute
University of Greenwich Kent, UK
j.a.butterworth@gre.ac.uk

India

Y.V. Malla Reddy
RDT
Anantapur
Andhra Pradesh

BK Kakade
BAIF Development Research Foundation
Pune mdmtc@pn2.vsnl.net.in

South Africa

Sharon Pollard
Association for Water and Rural Development (AWARD)
Acornhoek
sharon@award.org.za

This project is supported by the UK Department for International Development (DFID) through the Infrastructure and Urban Development Division's Knowledge and Research programme. Project R7804 'Integrating drinking water needs in watershed projects'.