

SecureWater

**Building sustainable livelihoods for the poor
into demand responsive approaches**



Darfur, Sudan: Photo Alan Nicol

Final Inception Report
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1 Executive Summary

The SecureWater Project has been ongoing since August 2001 and is due for completion in June 2004. Bringing together key agencies involved in water supply and sanitation, water resources management and rural and urban policy issues¹, the project addresses both policy and practice issues surrounding the development and implementation of demand-responsive approaches (DRA) to water supply and sanitation. The project core concern is to improve impact on the poor through building sustainable livelihoods approaches into DRA implementation. At present key agencies including the WSP are addressing the question of scaling up DRA, including considering how this can be achieved through the development of Poverty Reduction Strategies.

Since mid-2001, when the Inception Phase began, the project has held an inception workshop, completed scoping studies in five countries—India, Kenya, Malawi, Sri Lanka and Sudan—presented initial findings to the Bonn International Conference on Freshwater in December, developed a concept paper and begun to integrate household economy analysis into understanding the key water, sanitation and livelihoods linkages. In May 2002 at the end of the Inception Phase key team members held a Methods Workshop in Sri Lanka to look in detail at project methodological issues and the development of decision support tools.

Strong research and dissemination links have been established with the Water and Sanitation Program in Africa and South Asia, as well as with other training partners, including NETWAS in East Africa and ARTI in Sri Lanka. A project website (www.securewater.org) is up and running. The September inception workshop actively engaged WSP, NETWAS and DFID and laid the groundwork for the scoping studies. Emphasis was placed on mapping the institutional environment in each country and on building conceptual understanding of micro household impacts and macro policy linkages. The major thematic research questions to be addressed in the next phase were identified as: How are livelihood outcomes affected by changes in the nature of water supply at the household level? How have interventions (including sanitation) worked for or against livelihood strategies of poor households and why? How can interventions driven by demand-responsive approaches be improved so that they better fit—and help to support—the livelihood strategies of the poor?

Deepa Joshi of Southampton University is leading the Indian Research. The first case study area will concentrate on the Chittoor District of Andhra Pradesh, following discussion with the WSP who are interested to understand how a sustainable-livelihoods approach can be incorporated into current approaches. The initial scoping studies indicated that achieving equal cash contributions from all user households is an unrealistic expectation. In addition to WSP South Asia, strong links have been established with DFID programmes in AP, the Rajiv Gandhi National Drinking Water Mission, SC UK work in AP and Orissa and with UNICEF. One case study will focus on a district where the government Sector Reform Strategy—which is piloting DRA—is being implemented. Following discussion with the RGNDWM, there is a high level of interest in the research results feeding into this work. In addition the Mission hopes to compare the Chittoor work with a rural district in Western Orissa, which will be coordinated with DFID's rural water supply and sanitation programme in this region. Research on water and livelihoods in Hyderabad will also feed in directly to the DFID-funded urban environment improvement programmes in Hyderabad city and other urban areas in AP. Links have been established with the DFID-funded AP Urban Basic Services for the Poor project. In 2002 the project will establish strong links to the WHIRL project work in India and to wider research being undertaken by IWMI in South Asia.

The Kenyan case study is being led by ITDG-East Africa (a member of the Nairobi Informal Settlements Coordinating Committee) and is focusing on urban water and sanitation issues in the Mukuru Kwa Reuben informal settlement in Nairobi. Water has been identified as a critical requirement in small-scale income-generating activities. Currently the population largely depends on water vendors and communal

¹ The research partners are ODI, ITDG (UK and East Africa), Save the Children UK (HQ and Sudan), WaterAid (Malawi), ARTI and WRS (Sri Lanka), and the University of Southampton (India research component).

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water and sanitation facilities. DRA is an emerging policy theme in the Kenyan context. ITDG has already held feedback sessions with policy makers and planners on the initial scoping work at the national, municipal and local levels. ITDG is planning information dissemination through convening a special session with the Shelter Forum and NETWAS, building in SecureWater topics and modules into planned courses for 2002 as well as working on a 2-3 day training session with NETWAS specifically devoted to the SecureWater project. The SecureWater work will be closely linked during 2002 to WEDC KaR research on water vendors in Nairobi being undertaken with ITDG.

WaterAid is leading on the Salima Case study in Malawi. The main study will look in detail at the links between DRA implementation, decentralisation and capacity constraints at a local level. DRA concepts are firmly established in policy guidelines but historic dependence on state and agency provision makes implementation of DRA extremely challenging. Given the current food crisis in Malawi, this research now offers important scope for assessing the impact of very 'bad' years on household economies and their capacity to finance basic services. Currently the research leader—Linda Milazi—has established close links to the Ministry of Water Development, and will feed in research results to the ongoing Water Sector Review Process. Specific targets for the research and decision support output are the District-Level Coordination Teams, recently formed to plan and implement at a local level. In addition Area Executive Committees and their core constituency of institutions including NGOs and the private sector will be a key intervention focus. Malawi research will be closely related to ongoing ODI-WaterAid work on water and sanitation in PRSP processes.

Rajindra Ariyabandu at the Water Resources Secretariat leads the Sri Lanka research component, with key input from ARTI. This represents a major opportunity in Sri Lanka to influence and support the development of DRA both at the level of policy and intervention. The case study work will focus on the Hambantota District in the dry south east of the country. This is an area where the Asian Development Bank is implementing its Third Rural Water Supply and Sanitation Project using DRA. The May 2002 Methods Workshop enabled field work to be undertaken in a community currently involved in this project, identifying key areas of possible support to implementation that SecureWater could provide. Close links have been established with the Institute of Participatory Interaction in Development—a nationally-recognised training institute—and through collaboration with IPID the project will develop training tools. SecureWater in Sri Lanka will continue to build close links to IWMI's research on irrigation and poverty.

In Sudan the research focuses on Kutum, in northern Darfur, a drought-prone and frequently food insecure area. The research is being undertaken through both ITDG and SC UK. Currently, the withdrawal of government funding to this sector has left communities the responsibility for management and financing. Nevertheless, the scoping study indicated the extent of community capacity in responding to this need. One of the key research foci will be the Rural Water Corporation, which is expected to provide support services to communities, and the research will help to identify the most significant support interventions from a livelihoods perspective. The research output will also focus on input to the development of the Water Corporation technical and managerial training institute, as well as to work being carried out by GOAL, the WFP and UNICEF. Darfur research will link closely to other work on food security being implemented by ITDG.

Phase Ib to the end of 2002 will cover both the completion of detailed case study work and the drafting of decision support tools. The early establishment of a research forum looking at water and livelihood issues will also take place. Phase II will apply the research phase output to the piloting and finalisation of decision support tools, including their piloting in three countries, through training programmes and other forms of interventions. Key global policy 'markers' (Bonn in December 2001; Johannesburg (WSSD) in August/September 2002; and Kyoto 2003) and discussions at other fora (IWMI in May 2002) have been and will continue to be addressed by the project as part of the ongoing dialogue with interveners and policy makers.

2 Goal, purpose and outputs of the project

2.1 Background

SecureWater has emerged from the livelihoods thinking in the water sector since the mid-1990s. At a DFID-funded workshop (organised by Save the Children UK) in Harare in late 1997 a range of water and sanitation projects presented their experience in east and southern Africa, focusing on the livelihoods aspects of project impact. The World Bank WSP also presented analyses of both the economics of water provision and the emerging Demand-Responsive Approach. Both the timing of DRA development and the concern to understand poverty impact as a livelihoods issue (as articulated in subsequent DFID documents), prompted the development of this research. In recent years there has been a sharp increase in attention to water and livelihoods issues across a range of research projects, addressing both poverty impact and the perceived ‘gap’ between water supply interventions and wider ‘water resources development’, including the implementation of integrated water resource management approaches².

2.2 Project goal

To raise the well-being of the rural and urban poor through cost-effective improved water supply and sanitation; and to improve the availability of water for sustainable food production and rural development.

2.3 Project purpose

To increase understanding among interveners in the water sector of water-livelihood links, enhancing their capacity to eliminate poverty through demand responsive approaches.

For many decades water supply and sanitation policy has focused on achievement of health benefits through reliable and safe water and environmental service provision. This policy emphasis was informed by basic needs approaches and the ethos of ‘water for all’ during the 1980s ‘Water Decade’. Subsequent concerns over sustainable financing of the sector in the face of huge service under provision in the 1990s have been paralleled by shifts in global development policy towards a sharper focus on achieving poverty reduction. The shift from service delivery to responding to demand has gathered momentum during the 1990s.

In the water and sanitation field, Demand-Responsive Approaches (DRA), led by the WSP and the World Bank, have addressed the demand theme from the standpoint of sustainable financing. This reflects the shift towards understanding the full costs of providing water *as an economic good*⁴ to communities that came out of the Dublin Principles in 1992.

The central task of this research is to use new tools of poverty analysis—Sustainable Livelihoods, Gender Analysis and Household Economy Approaches—to inform ore effective DRA development and implementation. Achieving this requires the targeting of key decision takers and implementers at all levels, increasing their capacity to make informed decisions that can achieve increased poverty reduction, *as well as* lead to more sustainable services for the poor. This will entail engaging with agency policy makers and the key policy drivers in DRA implementation and scaling up, the establishment of close research links with government agencies and institutions at the national and sub-national level during the main research phase, and awareness-raising of the core objectives of the project amongst interveners in all five countries during the main research phase leading to the joint identification of piloting approaches in phase II.

² The DFID-funded ‘WHIRL’ project is taking up this theme and close research linkage will be sought in the next phase.

³ Particularly by the Global Water Partnership *Framework for Action* document produced for the 2nd World Water Forum in the Hague, 2000.

⁴ An idea articulated strongly in the Dublin Principles, 1992.

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Using SLA⁵ and HEA the project has begun to address key issues surrounding access to water and the livelihood assets and strategies of the poor. These analyses of micro-macro linkages include:

- the shortcomings of local-level institutional environments within which policy implementation takes place (and ways of strengthening these environments);
- the complex nature of articulated demand (and ways of better understanding the nature of ‘demand’ such that the ‘response’ can be more appropriate and poverty-focused);
- and the household-level role played by water as a natural capital asset (a productive asset as well as an economic good for which access incurs a cost).

The interrelationship between these micro-macro factors is a central feature of the research and one that demands a broad range of analytical skills and case studies, as reflected in the research team composition (see below and annexes). As a measure of the breadth of the research, whilst it has a specific focus on water and sanitation development, it is anticipated that the output will be of wider relevance to governance questions surrounding service provision in decentralising environments⁶.

2.4 Outputs

Inception phase: a number of outputs have been produced to date:

Methods Workshop: this was held in Sri Lanka from 6-17th May and enabled the detailed development of methodological approaches to the research and decision support. The workshop was attended by 12 key members of the project team and included a six-day field-based training period in techniques of household economy assessment. This led to the development of a SecureWater Assessment Method (see section 4.3) which is to form the basis for ‘building in’ SL approaches to DRA. In short it addresses the issue of ability to pay by different household types within communities and develops ways of assessing the impact of shocks and changes to household economies both within years and between ‘good’ and ‘bad’ years. This method can, *inter alia*, help interveners to select realistic cost options to present to communities, help to develop better ways of supporting community-level management (including raising finance and budgeting within and between years) and indicate areas where a demand-responsive approach alone may be difficult to operationalise.

Inception workshop and workshop report: the full text of this report is annexed. In short, the workshop and report brought together all the key research partners for three days during which methodological approaches to the project - focusing in particular on understanding the specific nature of sustainable livelihoods and HEA - were explored, and an effective team relationships was developed between country researchers, and with UK based institutions.

Concept paper: the full text is available at the project website www.securewater.org. This paper - which will form the basis for the first published briefing paper output of the project ahead of Johannesburg WSSD - develops the core arguments, outlines the development of livelihoods thinking and its inclusion within the water and sanitation sector, and sets out some of the key methodological challenges. As a ‘work in progress’ it remains on the website for feedback and comment.

Side event at the Bonn International Conference on Freshwater: This output directly addressed the global policy audience and served: 1) to raise the profile of the project amongst an international group of policy makers; and 2) provided a platform for three of the five country researchers (attendance was limited by available funds and other conflicting travel plans) to present scoping study results. The side event was

⁵ For a fuller description see the SecureWater Concept paper at www.securewater.org.

⁶ Already the research is linked closely to ongoing research led by IDS and funded by RLD on Access to natural Capital in southern Africa.

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well attended (included DFID and WSP discussants, chaired by Jon Lane) and drew useful comments for feedback into the project (see annex for details and visit the website).

Five Scoping studies and dissemination plans: After the inception workshop and to the end of 2001 the five research teams visited and assessed six field study sites (2 in India). The production of scoping study reports (see Annexes for summaries—full texts available at www.securewater.org) included institutional mapping and the surrounding policy environments, livelihoods-water links at household and community level and approaches to dissemination and uptake. These scoping studies were carried out and sites identified for full case studies in: India (Andra Pradesh (rural and urban) and Orissa); Kenya (Mukuru Kwa Ruben, Nairobi (urban)); Malawi (Salima District); Sri Lanka (Hambantota District) and Sudan (North Darfur).

Main phase: anticipated outputs over the next two years:

Six in-depth case-studies (by December 2002): These will examine the key policy and water-livelihoods issues in both rural and urban contexts, including sanitation and livelihoods linkages in an urban context. The key element in producing these studies will be their linkage to capacity building needs in-country. Researchers will be encouraged as part of their dissemination activities to keep the development of the case studies closely linked to uptake and dissemination.

SL-based decision-support tools (end 2002 onwards): arising out of the inception workshop was a strong recognition of capacity support and training needs, both within the project and in terms of project output, in the latter case to facilitate enhanced analysis, monitoring and pro-poor sectoral decision-making. The development of decision-support tools will be undertaken by a core group of country and UK-based team members in close consultation with interveners in each country. Inclusion of these tools in donor country strategy papers and government and NGO sector development plans in the five target countries will be sought by end 2003. An increasingly important target will be PRSP development and implementation, already underway in Malawi and Kenya (see Kenya dissemination strategy).

Research network and discussion forum: the development of this network and forum will be linked closely—and lead on from—the establishment of the www.waterandlivelihoods.org website (to be supported by DFID). The network will help promote institutional collaboration towards the development of sustainable financing mechanisms and appropriate technological choices for the poor, focused specifically on the development of DRA. The forum and network will be established prior to, and marketed at, the Johannesburg WSSD in August/September 2002 and the Kyoto Third World Water Forum, March 2003.

Dissemination of research findings, tools and training materials: both the establishment of an international research and policy influencing network (linked closely to established networks such as FAN), will help in training and decision support tool uptake, in particular by global-level policy makers. However, in-country network development and research linkage with other projects will be equally important in establishing national-level uptake. Key target institutions will include the WSP and UNICEF (particularly in India), national organisations and government ministries (see Section 5), and regionally and nationally-based research and training institutions.

2.5 Issued addressed/clarified in the inception phase

In relation to the stated purpose and outputs of the project the following key issues were identified:

1. How far does DRA, as a major policy shift in the water sector, address poverty and what are the opportunities for, and constraints to, making it more effectively pro-poor? Some of the main theoretical issues were examined in the Concept Paper. As a practical approach to influencing policy and the interventions that flow from it, maintaining strong policy-level links can assist in the uptake and dissemination of results that aid the development of more pro-poor approaches. The overall

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research method concentrates on the development of effective support to both policy makers and interveners through providing detailed case study examples that illustrate key water supply-household livelihoods linkages, and how a SecureWater Assessment can help to reveal the complex links between water and livelihood linkages and the sustainability of DRA interventions.

2. How can the concept of water security be better understood in terms of water-livelihood linkages, and how can the application of different methodological approaches improve understanding and assessment of 'demand', making it more sensitive to poor people's reality? This is a concern not simply of introducing new tools in an established methodological environment (see the input on CV methodology and demand assessment in the Workshop Report and Concept Paper), but of integrating the best aspects of these tools in a coherent way into existing decision-making contexts such that the tools are: 1) capable of use and uptake across a wide range of environments; and 2) support pro-poor decision making; without 3) complicating already resource-poor institutional environments. To this end the development of the tools will concentrate on clear and simple analysis of water and livelihood linkages and the ways this understanding can inform policy development and implementation. Our aim will be to build these tools into existing training networks and programmes as far as possible (E.g. work with NETWAS and the existing programmes such as the WSP/RGM project in India and the ADB Rural Water Supply and Sanitation Project in Sri Lanka).
3. How do existing policies and decision-making processes in the water sector influence water uses and livelihood outcomes in the case study areas? This is a major issue of policy development and 'evaporation'—that is how can policy (even if it is conceived as being pro-poor) make an impact when the institutional environment is weak and policy development and implementation is top-down, with little follow up monitoring and impact evaluation. One of the key challenges of the case study and uptake work is therefore to understand the problems and pitfalls of policy implementation so that decision support can assist the implementation and uptake of policy that is pro-poor, as well as simply developing 'pro-poor' instruments. A key way of addressing this challenge will be developing forms of training and development that can be used at lower levels, including district and sub-district.
4. What types of capacity building and decision making support are required to enhance demand-responsiveness in approaches to water supply development? Given the challenge of weak institutional environments, what are the needs institutionally and in terms of process that decision support tools and other project outputs can meet. This is the major task of the research sub-group that will take forward decision support development in parallel and linked to the development of the case study work. A key task of country researchers will therefore be to examine this question and build into their links with interveners ways of supporting policy uptake and implementation.

3 Initial Findings

3.1 Literature review and analysis of related research

The following summary of initial findings is based upon reviews of existing literature and other related research, presentations and discussions at the Inception Workshop, scoping studies in five case study countries and wider discussion at the Bonn meeting.

3.1.1 Policy and institutional issues

The 'Dublin Principles' in 1992 represented shift towards achieving sustainable water supplies through promoting demand-led, as opposed to supply-led, development. Stimulating demand, achieving full cost recovery and building community ownership became key goals of interveners. During the mid- to late-1990s the concept of a 'Demand-Responsive Approach' emerged and was promoted by the World Bank and the WSP, based on experience drawn largely from Africa. Subsequently this has become a major international policy approach and is rapidly being translated into new policy orientations, particularly in the development of PRSPs⁷ (World Bank 2000).

The Water and Sanitation Programme (WSP) sees demand-based approaches as more sustainable than supply-dominated approaches. Treating water as an economic good as well as a social good helps to promote 'innovation and flexibility' (World Bank 1998) (see summary box, below). Consumers are engaged in the process of selecting, financing, implementing and managing water and sanitation services according to *expressed* user demand. DRA therefore requires new ways of intervention by all sector stakeholders, including communities, NGO's, the private sector, government and international agencies. However, whilst World Bank studies show that employing a demand-responsive approach at the community level increases water system sustainability (World Bank, 1998), some also note significant challenges, particularly relating to financing arrangements and institutional capacity (WSP, 2002).

The development of this approach, particularly in east Africa has been accompanied by a privatisation of water and health services 'on a grand scale' (IIED Drawers of Water II Study, 2001). This study has shown that NGOs and CBOs are playing an increasing role in service delivery and, in fact, are in many ways key links 'straddling' state and civil society. The implications for the research being undertaken here include the types of support tools that are developed and to whom they are addressed. There are clear differences in capacity and training needs between large government bureaucracies and smaller, civil society and quasi-private service providers. Finding ways of helping the linkages and analysis of demand across these linkages is an important goal.

Two recent studies by the World Bank and the WSP, have highlighted some of the issue surrounding DRA implementation. One report notes the fact that the term demand-responsive is somewhat 'overused and vague'. 'Demand' itself is a relative terms and that the degree to which something is demand-drive depends on who makes the decisions about the type and level of service and what range of decisions users make (World Bank /OED, 2000). In the WSP study on 'Linking Sustainability with Demand, Gender and Poverty', (WSP, 2001) the research team concluded that 'The more that gender- and poverty-sensitive demand-responsive approaches can be used from the beginning in interactions with communities, the more the community has the opportunity to influence the service delivery process, and the

⁷ Poverty Reduction Strategy Papers.

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more it helps to build community ownership and capacity to manage the service effectively'. The study also identified a need for 'tools and methods...and the capacity to use the, to undertake gender and poverty disaggregated planning, data collection and analysis...This includes assessing and responding to the demands of often excluded groups who are potential consumers such as the poor, women, and religious and cultural minorities". (WSP, 2001, 27).

This echoed a similar concern of the DFID Strategy Paper on Water (DFID, 2000) which cites responding to demand as a key lesson from recent experience in water supply, arguing that "it is now recognised that, at least in the case of water supply and sanitation, programmes have more chance of succeeding if their costs and service levels are tailored to local conditions and the users' demands". The paper continues, "While evidence of the link between demand-responsive approaches and sustainability is increasing, research shows that there are few projects that fully meet demand-responsive criteria. Implementing this approach needs more work on both policy and practical levels. For example, poor people may not always be able to express their demands, so project staff need skills in social mediation and communication." (DFID, 2000).

The significance accorded better understanding of and response to demand is reflected in research such as that being undertaken by WEDC—'Designing water and sanitation projects to meet demand: the engineer's role' (KaR R7386). This research project 'investigates what it takes to meet demand, and the implications for engineers in particular' (WEDC website). The project identifies important conditions attached to the effective expression of demand including that 'people must be willing and able to express their demands' (Project Background Paper). As will be seen under the India case study communities do often not meet this condition and—within communities—those who can articulate demand effectively are capable of capturing development processes. The WEDC research also notes that there are some key aspects of demand—including the livelihoods basis on which demands are made—that require complementary understanding derived from other disciplines. In this respect the SecureWater project can provide important inputs into engineering approaches, including assistance in the costing and assessing of 'best-livelihoods-fit' service options for different community contexts (for instance pastoral versus dry-zone agricultural in rural areas).

Box. Key principles of DRA summarised

- Informed choices by communities through participatory planning and community involvement in implementation to ensure ownership
- Complete community management responsibility for operation and maintenance (O&M)
- Cost recovery – capital cost sharing (expression of demand and 'ownership') and 100% O&M
- Promoting more options for service delivery
- Integrating water supply with sanitation, environmental management and hygiene education
- Targeting the poor
- Supporting integrated water resource management

Source: WSP East Africa

In tandem with the process of DRA development, Sustainable Livelihoods (SL) approaches have emerged in recent years. A substantial literature exists on the topic, relating both to theoretical developments and, increasingly, experience of implementation. SL approaches are described in depth elsewhere (see, for example, DFID 1999). Most donor interpretations of an SL approach consist of a set of guiding principles, an analytical framework and an overall development objective (Farrington et al. 2001).

A key strength of SL analysis (SLA) is in understanding how existing policy and resulting institutions and structures influence outcomes and strategies of the poor. This is a core concern with respect to implementation of DRA. If DRA achieves supply sustainability, what is the cost for poor households? Is it significant, or relatively small? In what circumstances

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does the relative cost increase—for instance in ‘bad’ years? How significant is the cost in terms of access to other basic services such as health and education? Are the important trade-offs in access to other services involved in additional water costs?

Specifically, SL analysis recognises that access to five different types of capital assets (human, social, natural—including water—physical and financial), and the ability to put to productive use whilst reducing risk and vulnerability, are central components to poverty reduction. SLA broadens out the understanding of water as a cost and an economic good, and views water at the household level as a productive asset that can be combined with other assets to bring in financial and non-financial income and create future livelihood security. This has a bearing on how communities (and households) choose between different technologies made available to them and how their livelihood strategies help them to finance recurrent and capital costs of supply. The Malawi scoping study offered useful policy insights in this respect (see box).

Technology choice in Malawi?

Groundwater is the main source of water in rural areas of Malawi. Historically water sector initiatives have focused on the provision of boreholes and the sector remains very much supply-driven. Boreholes are commonly preferred because they are easy to install, regardless of the appropriateness of the technology to community water requirements. The scoping study highlighted a widespread misconception of DRA. Demand assessment equates to whether or not a community is prepared to pay contributions to the cost of a borehole, and implicitly the ability to exert political influence to get one. Boreholes are expensive to install, operate and maintain but there is little element of choice and communities are unaware of the relative costs of alternative technologies. Demand-responsiveness in the true sense implies technological choice. This is difficult to provide in practice but some choice, no matter how short the menu, is preferable to none if the development is to be sustainable in the long term.

(Malawi scoping study, 2001)

Choosing technologies will be influenced by factors such as yield and distance. Whilst some earlier studies, including that by Churchill (1987), provided insights into the economic cost/benefits related to time spent collecting water, they rarely examined wider water-asset linkages that could inform technological choices of the poor. In the early 1990s, an study of the opportunity costs of scarce water supplies in two squatter communities on the outskirts of Khartoum (Cairncross, 1992) indicated that water was of such importance to households that the price elasticity of demand was effectively zero, and where water prices were high relative to income, households were forced to trade off other basic expenditures (e.g. food) against water, with severe nutritional consequences (see HEA, below).

Further thinking on water and livelihoods represented in the papers written for a workshop on Water and Livelihoods (Nicol et al. 1998) addressed critical issues surrounding water for productive uses. In particular, the ways in which increased access to water can promote the creation of new livelihood activities were highlighted with links to other asset creation including education for girls and other gender-specific issues. Subsequent work in Ethiopia by Calow, et al (2000) showed significant linkages between livelihoods, groundwater availability, and access and use in water-scarce environments. Water was a key factor in addressing wider household food security concerns in these environments.

Research established in 2000—the WHIRL Water, Households and Rural Livelihoods Project supported by DFID—seeks to understand important issues of convergence between water supply and sanitation development and ‘higher level’ catchment management processes, including issues of how catchment management processes might affect demand for domestic supplies. It is anticipated that the research will help feed into this work through addressing a specific element of policy—the DRA approach—and unpacking the policy and institutional linkages to household level decisions over demand for water. This will help draw important links between the macro policy environment and processes of change such as decentralisation

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of water resources management, and the development and implementation of IWRM and catchment management processes.

Similarly, SecureWater will help feed into DFID-supported PRP projects on livelihoods and diversification (the 'LADDER' project led by ODG), 'Livelihoods Options' (led by ODI), Sustainable Livelihoods and Access to Natural Capital in Southern Africa (led by IDS) and Improving Policy-Livelihood Relationships in South Asia (led by Leeds University). In the case of the latter and its concern with policy reform to improve access to livelihoods assets, SecureWater will develop both detailed case study work on links between policy reform and poverty impact as well as influencing key decision making and intervening institutions to develop more pro-poor approaches to DRA policy implementation. Closer links will be developed between the ODI-led Livelihoods Options project working in AP and the SecureWater research.

The gender dimensions of household livelihood strategies are of key significance too, particularly given the gender-assigned roles within households that can dominate access to and control over water assets (Cleaver & Elson, 1995). The impact of 'commodification' of water resources on the gender-division of household labour has been highlighted during a study of the southwestern lowlands of Eritrea (Kibreab and Nicol 2001). Research on water and gender in India has examined in detail the role of women in water resource management at a local level in India (Joshi and Fawcett, 2001) (see box below). Deepa Joshi's contribution to the project will feed in directly to the Andhra Pradesh Rural Livelihoods Project in India, particularly in its informed approach to the gender dimension of the DRA, livelihoods and poverty links. Strengthening the women's self-help movement in AP and 'harnessing their energies for broader livelihood interventions' is a key feature of the APRLP strategy and one that the research will endeavour to support through looking at issues including women's expression of demand, and the constraints and challenges that they face.

The challenge for this project, therefore, is to build on these insights gained in past research and work them into the current livelihoods-DRA focus. Ways in which this understanding can help to overcome DRA implementation problems including:⁸ *financing* (both in terms of establishing principles and achieving sustainability); *service option choice* in terms of the 'fit' of options to community livelihoods and issues such as the vulnerability of poor sections of communities; *institutional issues* (identifying appropriate institutional models to ensure high quality and inclusive services, and balancing decentralisation and user control with lack of capacity at lower levels); and *political will* (seeking policy 'champions', and overcoming the significant perceived political costs of moves towards user-financing) will be a challenge for the project in the next phase.

A particular concern of this research is to assist sector practitioners in understanding the nature of demand and in incorporating and integrating different types of demand into operational guidelines, for instance relating to willingness-to-pay surveys. SecureWater can also help in understanding the roles of different groups in helping to provision water services in different contexts (see box, below), in effect deriving livelihoods from trading water in market-type situations.

Harnessing the potential of small scale private sector operators in Nairobi

The Nairobi scoping study highlighted the fact that while water sector management and supply at the macro level has been handed to large private sector monopolies, small scale private sector operators, upon whom the majority of the urban poor depend for their water supplies, have been criminalised. A key challenge in urban water supply is 'linking up the water-sanitation chain' i.e. linking large scale suppliers to small scale operators. In this way water quality, availability and

⁸ Meera Mehta WSP, presentation to Inception Workshop, Nairobi September 2001.

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price can be regulated more effectively and the urban poor can generate an income from engaging in WSS activities. (Kenya scoping study 2001)

The Nairobi workshop discussions highlighted the fact that ability and willingness of poor households to contribute to costs, either in cash or in kind or a combination of the two, varies significantly between households, in the experience of the case study researchers. A key concern of the case study work and its linkage to policy processes is to examine the scope for redefining 'demand' in order to make understanding 'demand' more sensitive to poor people's reality. One key element of this is in an improved understanding of the true productive value of water in sustaining livelihoods and of the possible trade-offs between achievement financially viable supply structures and the issue of who contributes within a community. The contribution of water as a vital productive asset—and how it can be combined with different assets by different household types in a context such as Darfur—reveals the stark differences in value of safe and secure water supplies to different wealth groups. Whilst it is often the poor who are said to benefit from the provision of a basic supply, it is those with other major assets who may disproportionately benefit from more water availability for productive uses

Community-based water management in Sudan

The community in Darfur was found to be highly organised and willing to participate in water management and contribute to construction and maintenance costs, either through direct payment or labour. Customary rules govern access and resource allocation between and within sedentary and pastoral groups, and are institutionalised through tariff systems which generate revenues for reinvestment. Capacity for financing and management of water sources is strong at community level, but unfortunately government capacity to respond to community demands for technical support, fuel and spare parts remains weak. (Sudan scoping study 2001)

The inherent heterogeneity of communities is well known, as is their frequent location for competing and conflicting interests (Ostrom 1990). Water is also inherently political at all levels and these political aspects are often embedded in complicated property rights surrounding the resource. As the India scoping study described, public spaces and public decision-making authority have historically been the domain of the 'upper caste' men in most Hindu communities in India, and Dalits and women have historically been excluded from these political forums. How and where the poor (and the poorest) are consulted within community-level decision making processes is therefore both a major gender concern and issue of social exclusion (see box, below).

Social exclusion in India

Deepa Devi's household is the only Dalit family in Roulikhet village. Her husband and other members of the family have migrated to Bombay and Deepa Devi lives alone here with her two young children. Deepa Devi did not attend the non-formal education, income generation and hygiene education trainings provided through the project. She says she was not aware that these sessions took place. The upper caste women in the main hamlet say, "We called her but she did not come." Even if called, Deepa Devi as a single householder with two young children would have had little time to attend these sessions. But, much more importantly, Deepa Devi's touch and mere presence are considered socially polluting. Would the upper caste women who abide by the social norms of purity and pollution, invite her for stitching and literacy sessions in small closely packed rooms, or sit on the same mat with her in the open? It is another matter that this village, heralded as the success story of the project, excluded Deepa Devi's household from the improved water supply scheme and the subsidised sanitation specially determined for the Dalits. Various theories of connivance are quoted locally to explain why the family could not be included. (India scoping study, 2001)

3.1.2 Water and the household economy (incorporating gender and poverty analysis)

Specific issues of concern on the project are how water and livelihoods thinking can add value to existing demand assessment techniques and how SLA, broader water resources analysis and gender analysis can be brought together with techniques of household economy

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assessment. Combining these approaches into an effective and useful SecureWater Assessment Method is a key concern of the project. The strength of combining different approaches lies in the need to address the complex interactions of water as part of natural capital and household livelihood strategies. How and why, for instance do different livelihoods strategies lead to different sources choices during different seasons? And what are the implications of such choices for the successful implementation of DRA?

Multiple water sources in Sri Lanka

An interesting dimension of water-livelihood linkages in Hambantota District is source preference and the multiple 'types' of water distinguished by respondents. Particular sources are deemed suitable only for specific water uses. The scoping study suggests some households use up to eleven different sources of water in the dry season, at considerable opportunity cost. Richer households with transport were found to travel up to 7km in search of potable water. (Sri Lanka scoping study 2001)

The complicated nature of access issues came through in all the scoping studies. It is not just the question of water as part of the natural capital asset base of households, but the expenditure of households in gaining access to these resources in terms of other asset use that is critical (see summary table in Annex and box below).

Barriers to Accessing Secure & Sustainable Water Supplies

Financial—cost (water tariffs) in many urban areas, and some rural locations can be a significant barrier preventing access for the poor. Although studies have shown that they spend a significant proportion of income on accessing water for consumption, the significant additional opportunity costs are rarely accounted for in the design of water supplies. The Kenya scoping study suggests water tariffs may be a barrier to diversification of livelihood activities, including urban agriculture.

Time—perhaps the most significant barrier. Trips to water points in rural Africa can often cost considerable time for a household (a round trip of 6 km, anything from 2-4 hours depending on the terrain, is common in rural Africa). Multiplied by different members of the family, this may easily account for 30 productive person-days a month. Moreover, there are significant gender- and age-specific issues involved in the division of labour for water collection. In rural Africa, where most agricultural labour is undertaken by women, the productive impact can be great. In economies where households rely on their sale of labour—including the *ganyu* system in Malawi—the cost of losing a day's labour can be exceptionally high at particular times of the year.

Physical—the physical effort alone of carrying water has an enormous impact on the poor. A 20-litre jerrycan weighs at least 20kg, and collection exacts a large physical burden on women and children in particular. The different impacts (for instance on a pregnant woman or a small girl) are potentially severe, not just in terms of energy loss, but also possible short and long-term injury. Resort to draught animal power often requires direct payment and may only be available to richer households. The Malawi scoping study also highlights personal safety issues facing women forced to collect water after dark.

Social—social costs may be less tangible, but even more significant. Access issues related to membership of particular social groups are amongst the most difficult to resolve. In many cases social access rules depend on the type of source and the property rights regimes, rules and norms surrounding particular sources. The Indian scoping study describes the frequent exclusion of lower caste groups from using certain sources as they are considered 'polluting'. Use of one source can also entail social obligations, particularly in societies where reciprocity is very strong, including amongst pastoral groups in Sudan and Ethiopia. Hence, whilst exclusion from sources may be difficult, reciprocal use may be the *quid pro quo* for access. (Inception Workshop, 2001)

Initial findings suggest that SL usefully bridges understanding of the policy environment and these access issues, including providing an overview of the structure of demand at a household level according to livelihoods activities. It also brings through policies, institutions and processes an understanding of livelihoods policy contexts, a key point raised at the Inception Workshop (see box, below).

Policy questions and service 'options'

Effective policy analysis requires a clear understanding of policy objectives, i.e. what sort of water supply to sustain, for whom and over what time-scale? Objectives need to be linked to realistic policy processes—not what 'should' be done, but what 'can' be done. This also involves assessment of the

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feasibility of required reforms and evaluation of the political will to implement these reforms. These are difficult questions, but thorough examination of the interface between policies, institutions and people is crucially important in order to make practical and useful recommendations. PIPs analysis itself needs to be located within the wider political and socio-economic context.

Wider experience shows that imposition of DRA targets might create pressure on local implementing institutions to increase coverage in a short space of time. This may actually preclude more effective, more sustainable solutions (e.g. collector wells), as local authorities will inevitably be drawn to the cheapest, quickest technologies. This raises the question what is success? DRA says priority should go to articulated demand, but governments often prioritise according to political pressure. Providing technical choice is very difficult in reality due to the back up required, and administrative and logistical burden. There are therefore certain limits to 'options' for service delivery, with clear implications too for scaling up the implementation of a policy such as DRA.

Roger Calow: Presentation to Inception Workshop, Nairobi.

To help address these issues the development of the SecureWater Assessment Method is drawing on the experience of household economy analysis developed by Save the Children UK. This assists in capturing the complex interactions between water and other livelihood assets at the sub-household level, and in identifying the potential benefits (and costs) of supply improvements for different socio-economic groups within a community.

The HEA method developed by Save the Children and presented at the Inception Workshop, is well-established and widely used by a variety of development agencies⁹. HEA describes the strategies people use to access food and income and explores how typical 'better off', 'middle', 'poor' and 'very poor' households live and interact economically. The approach, which is described in depth elsewhere (see SC, 2000), uses well-rehearsed PRA techniques such as key informant and focus group discussions. It quantifies by wealth group, the main sources of income and items of expenditure in a normal year, and models the effects of shocks including crop failure, drought or loss of market access. This methodology is particularly useful in defining and identifying vulnerability in different groups and therefore in predicting likely responses to change—including the impact of different service 'cost options' on households.

Recent pilot work has extended HEA to the intra-household level. The focus of this work is on the labour and other costs of all activities undertaken by household members, including children and the elderly. Enquiries also cover non-economic domestic and maintenance activities, as well as work that has an economic value. The objective is to model the way in which poor households with a given set of assets (including labour), invest this in economic and other activities. The IHM, which is currently being piloted in Uganda and Bangladesh, is designed to analyse the effects of change within households. The key elements of SL and HEA are summarised in the box, below.

SL and HEA

While SL provides a description of the resource base and other contextual factors that influence livelihood outcomes in a given location, HEA allows us to quantify and model economic outcomes within this wider framework. The fundamental aim of household economy assessments is to :

- Analyse how people gain access to food and income and identify significant constraints
- Understand how households interact economically
- Identify the economic options and capacities of different household members under different conditions

This information can be used to model:

- the effects of changes in the external environment (the 'covariant shocks' that range from floods to inflation), and
- the impact of changes within households that will affect the viability of the household as an economic unit (for example, changes in household demography or in the capacities of individual household members),

⁹ Including DFID, the EU and USAID.

Factors that limit access to resources and the means of production (including gender, disability, age, etc) are included in the analysis, which should lead to an operationally useful understanding of questions such as:

- Why are particular groups of people poor?
- What assets does a household need to exploit economic opportunities in this locality?
- What are the main causes of changes in peoples' entitlements to economic goods?
- How do social and cultural institutions and processes impinge on economic capacities ?
- What is the impact of legal and institutional arrangements on the economic activities of different groups (described as the Policies, Institutions, Processes (PIPs) box in the DFID SL framework)?
- How would different safety nets or social protection policy options affect different population groups?

HEA therefore provides a framework for dynamic modelling of the economy, within the wider analysis of socio-political and economic variables provided by SL. Celia Petty, SC UK

HEA assessments produce data sets detailing the characteristics of different wealth groups, a breakdown of the proportion of the population falling into these wealth group categories, a description of the main sources of income, including agricultural and other sources, a description of the main items of expenditure and 'flexibility of income' and a description of coping strategies. In a recent assessment in Bangladesh (Kurigram District Assessment, HEA training course April-May FSLU, SC 2001) water for production was documented as a key item of total household expenditure. The data showed that poor households relied on agricultural sales as their main source of income. Production costs (including fertiliser, seeds etc) accounted for 22% of total household expenditure in this group and a further 11% of production expenditure is used for water. Very little flexibility in expenditure within these households was observed, indicating low potential capacity to pay more for water supplies.

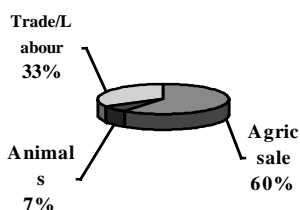


Fig. 1: Poor Income

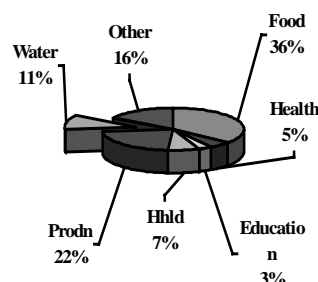


Fig. 2: Poor Expenditure

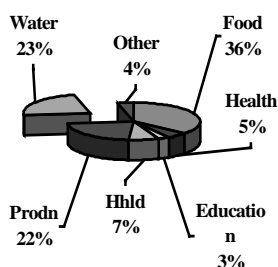


Fig. 3: Expenditure after doubling in water price

As well as providing a quantitative basis for assessing the level of competing demands on expenditure (such as health and education), HEA can help reveal the absolute limits on capacity to pay. In addition HEA studies indicate levels of 'income flexibility' and provide a more rigorous basis for assessing how changes in water supply (new tariffs, etc) are likely to affect overall household economy. For example, in poor households, the effect of doubling the cost of water (or any other commodity) is rarely as straightforward as simply doubling expenditure. Depending on other household priorities and demands, this is likely to result in

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cutting one type of expenditure completely (e.g. education) or shaving a little from each category of expenditure (e.g. reducing health care, lowering dietary quality, removing children (frequently daughters from school etc).

Information on income flexibility is particularly important for planning purposes where cost recovery is being implemented across a range of services. However, it does not provide the level of detail needed to understand the different values that might be placed on water by different household members. This is critical to the implementation of demand responsive approaches in water, and requires work at an intra household level—involving diverse issues of age, gender and occupation specific household attributes.

WTP surveys show large intra-household discrepancies in the amount that different household members state they are prepared to pay for water (see Concept Paper for further details). In order to explain these discrepancies, we require a better understanding of how and why different household members exploit the economic opportunities available to them, and the priorities that arise from this. The IHM currently being developed and to be included in future methodological development of the project (see next section) should provide some insights into these dynamics, and the basis for intra household economic decision making. For example, it should enable us to predict the range of opportunities that could potentially be released (or removed), by decreasing (or increasing) the time spent by women and children on the essential task of collecting water, or improving the availability of water for livestock.

Intra household analysis should also provide a basis for exploring and quantifying the effects of non-economic factors which impact on peoples' capacity to function economically (for example in relation to water, these may be caste and gender), and to assess the relevance of different safety nets/social protection policies for specific population groups.

This level of enquiry is particularly relevant to certain aspects of water and livelihoods analysis, where DRA is being implemented. For example, it may be important to know how, why and by whom decisions are made in relation to the management and control of different household assets. Similarly, what are the wider impacts of investment in domestic water supplies likely to be? Does the time released by easier access to water have an immediate economic value for the household? Or is this time more likely to be invested in ways that may result in future benefits, for example in girls' education. This type of information, that takes in a more comprehensive view of livelihood impacts, is critical for planning purposes, income projections and more fundamentally, to achieve poverty reduction goals.

3.1.3 Related research

The development of the project and the research output to date as mentioned above, follows on from work undertaken in the past. Other related and important research informing this project includes the livelihoods and watershed development work in India (e.g. see Turton, 2000, 'Enhancing Livelihoods Through Participatory Watershed Development in India'). IDS-led research on access to natural capital in southern Africa is building an analysis of decentralised water management contexts and implications for access by the poor in three countries: South Africa, Mozambique and Zimbabwe. (ESCOR CNTR 99 8856). There are many complementarities with SecureWater and strong cross-learning between the projects will take place in the Africa context.

In India, a number of research projects examining resource and livelihoods issues are underway in Andhra Pradesh and the SecureWater project will link research efforts during 2002 and in the application stage in 2003. Key members of other research teams will be invited to the SecureWater Review meeting to be held in India at the end of 2002. Former

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IIED research in Gujarat is also an important reference point on the livelihoods approach and links will be made with the outputs of this research. Other research brought into the project through institutional collaboration with BGS includes looking at groundwater, drought and water security in Africa (KAR R7125), and community management of groundwater in India ('ComMan', DFID-KAR).

The project will continue to build on the analyses and experience of other past and current research on demand, including earlier WEDC research looking at methods of demand assessment (WELL Task 207) and a KAR project addressing cost recovery mechanisms undertaken by ERM (R7384). It also links closely research carried out by the World Bank on DRA at a global level (Katz and Sara, 1997 and the DRA Web-Conference output in 1999), as well as to the WSP study on 'Linking Sustainability with Demand, Gender and Poverty' (2001).

The urban sanitation component, being led by ITDG in Nairobi, will build on KAR projects under the urbanisation theme being led by ITDG (Regulatory Frameworks, Integrated Urban Housing), which are among early efforts to investigate Sustainable Urban Livelihoods. In addition, as mentioned above, the WEDC/ITDG KAR project on Small-Scale Independent Providers in the Water Sector (WEDC W4-20) will also be a key research linkage.

3.2 *Activities to date*

The table below summarises the activities to date. For further details of the Inception Workshop see the Annex. The full Concept Paper is accessible through the Website www.securewater.org.

Summary of activities to-date

- Inception workshop in Nairobi to review concepts, methods, country case study contexts and collaborative arrangements (see Annexed Inception workshop report and executive summary).
- Concept paper development including review of literature, methodological approaches and other related research.
- Country case study site visits and preparation of short scoping studies outlining water-livelihoods issues in five countries.
- Finalisation and presentation for discussion of SecureWater concept paper and three country scoping studies at International Conference on Freshwater, Bonn 3-7th December 2001.
- Team meeting held at Bonn to further strengthen collaborative arrangements
- Synthesis of initial findings and preparation of Inception report.
- Methods workshop in Sri Lanka, May 2002
- Presentation to IWMI, May 2002

List of project outputs to-date

- Secure Water Inception Paper August 2001
- Secure Water Inception Workshop report and executive summary Sept 2001
- Initial scoping studies conducted in 5 case study countries (see summaries in annex)
- Secure Water Concept paper developed and presented at Bonn, Dec 2001
- Dedicated project website www.securewater.org
- Inception Report to DFID, January 2000
- Methods workshop report in Sri Lanka, incorporated into revised Inception Report

In addition to the country scoping studies—full versions of which are available at the website—and summaries of which are annexed, a presentation was made at the Bonn International Freshwater conference.

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The International Freshwaters Conference in Bonn, 3-6 December 2001, provided an important opportunity to present some of the SecureWater inception results to a larger international audience, and to receive feedback on project aims, objectives and overall direction. Six members of the research team took part: Alan Nicol and Sylvie Cordier (ODI), Barnaby Peacocke (ITDG), Omotto Josiah (ITDG East Africa (Kenya)), Linda Milazi (WaterAid, Malawi) and Rajindra Ariyabandu (Water Resources Secretariat, Sri Lanka). The meeting, chaired by Jon Lane (former WaterAid director), drew some 30 participants from a diverse range of countries and institutions, including Africa, Asia, Europe and Latin America, governmental, non-governmental, private sector individual participants. Ian Curtis (DFID Senior Water Adviser) and Meera Mehta (Senior Financing Specialist, Water and Sanitation Program, Africa) provided comment on the presentations. (full participants list at www.securewater.org).

Discussion following the presentations included how the project addressed water and health issues and whether the implication was that these were being played down (the response to the question was that health was seen in the context of household livelihoods and not a stand-alone issue). The question of the conceptualisation of 'household' by the project was also raised, including how issues of gender and intra-household level negotiations were being taken on board? (IHM looks specifically at many of these important gender issues). In addition it was asked whether the approach being developed sufficiently integrated household water with wider water resources management issues. Another intervention underscored the importance of income-generating activities such as urban irrigation and the need to look broadly at the conceptualisation of livelihoods.

The two discussants provided comment on links to demand-responsive approaches (the key policy focus of SecureWater) and the SL perspective. Meera Mehta addressed three key issues: Firstly the question of how to scale up DRA to a countrywide level. Uses of water for productive purposes and links to financing capacity were an important issue, she argued. Furthermore, issues of scaling up and incorporation at a policy level were significant, and she pointed to practical examples of this from Eritrea. Secondly she stressed the important link to decentralisation processes in Africa, particularly in relation to the question of local-level resource mobilisation, and ways in which local institutions could determine rules governing water supply development at a local level. Her third point emphasised the importance of links to micro credit provision, given that DRA and sustainable livelihoods incorporated important financial components.

Ian Curtis emphasised the importance of SecureWater within DFID's KAR research programme, and singled out the way it brought livelihoods thinking into DFID's policy concerns in water supply and sanitation. Echoing a point raised by a participant, and the issue put by Meera Mehta on productive uses and financing linkages, Ian Curtis outlined a Ghana example where micro irrigation was of particular importance to some communities and households. Linked to this, and the wider question of financing, were issues of indebtedness, he argued. Whilst micro credit was an avenue to explore, there was always another side to credit, and he argued that the debt issues might be important to look at within the project. Finally, he recognised that research was important when it could actually improve interventions, and he hoped that this would be the major outcome of the SecureWater project.

The summary table below indicates major themes arising out of the Scoping Studies. These will form the focus for the full research case study phase.

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	PIPs Context	Emerging Water-livelihood stories	Local policy and institutional processes	Selected issues
Sudan	<ul style="list-style-type: none"> State/Provincial system Policy 'vacuum' Weak implementation 	<ul style="list-style-type: none"> 4 types of supply system Dimensions of source preference Seasonal variation in water use Pastoral context/interface Employment and income generation opportunities from water revenues, tariff systems 	<ul style="list-style-type: none"> Community based management capacity, rules of access, resource allocation/exclusion Community financing of O&M Participation in resource management 	<ul style="list-style-type: none"> Pastoral context/interface in relation to productive uses Employment and income generation opportunities from water revenues Environmental impact, multiplier effects and transfer of benefits
Malawi	<ul style="list-style-type: none"> Political interference Policy evaporation, strong policy statements versus weak implementation Lack of sectoral co-ordination 	<ul style="list-style-type: none"> Inappropriate technology choice Lack of involvement of communities Lack of government support for community initiatives 	<ul style="list-style-type: none"> Decentralisation but limited capacity and resources Limited community participation Limited financing options in absence of govt 	<ul style="list-style-type: none"> Political interference Decentralisation but limited capacity and resources Policy evaporation, policy statements not realised Role of NGOs in the absence of government
Sri Lanka	<ul style="list-style-type: none"> Politicised water/ policy environment Progressive policy but political will lacking 	<ul style="list-style-type: none"> Collapse of traditional tank management systems Multiple sources of drinking water under different systems Demand relates to expectation 	<ul style="list-style-type: none"> Disconnect between traditional institutions and state institutions Water traditionally a 'free' resource. Lack of WTP for water 	<ul style="list-style-type: none"> Politicised water/policy environment NGO intervention in areas traditionally responsibility of state Multiple sources of drinking water and multiple 'types of water' Customary systems of ownership of water resources
Kenya	<ul style="list-style-type: none"> Liberalisation Private sector monopolies WSS a PRSP priority for urban areas 	<ul style="list-style-type: none"> Sanitation and income generation opportunities for the poor. Informal water sector entrepreneurs. Social exclusion 	<ul style="list-style-type: none"> Land tenure insecurity Local government reform programme focusing on local authority service delivery Participation of the poor in urban planning 	<ul style="list-style-type: none"> Sanitation and income generation opportunities for the poor Water vending issues (informal sector licensing, tariffs, marketing) Water and livestock, pastoral vulnerability
India	<ul style="list-style-type: none"> Institutional complexity/fragmentation malcoordination 	<ul style="list-style-type: none"> Major issues of social exclusion, barriers to internal community cross subsidisation Use and abuse of targeted subsidies Absolute limits to capacity to pay 	<ul style="list-style-type: none"> Panchayat raj system and village water committees Watershed approaches Lack of participation of the poor in WSS decision making. 	<ul style="list-style-type: none"> Institutional complexity/fragmentation and malcoordination of effort Lack of policy permeation to lower levels How to address issues of 'social exclusion'

4 Project planning

4.1 Implications of initial findings

The research project structure remains substantially the same as for the initial proposal. Initial feedback from policy makers contacted on the nature of the study has been positive and there has been a strong willingness to engage by policy makers and interveners. The research team remains committed to the project and research outputs have been produced on time. Following the Inception Workshop output and discussions with DFID it was agreed that the Sri Lanka methods workshop should be undertaken prior to final submission of this Inception Report.

The main implication of project findings to date is the need to develop a twin-track approach to engaging with interveners and policy makers that focuses both on training and development of livelihoods-oriented DRA and on the practical support to interveners through the development of effective decision support. Training undertaken during the Methods Workshop and subsequent follow-up visits will equip research team collaborators with methods of SecureWater Assessment. In tandem with the application of the research methodological tools a key decision support tool will be developed during 2002 in the form of a SecureWater Assessment Manual. The concept of such a tool will be based on simple and non-data heavy usage. It will draw on existing information as far as possible and aim to provide interveners with an accurate picture of the capacity of household economies to finance different service options, the key issues of livelihoods linkage and wider socio-political and gender issues that help to shape demand, and best ways of fitting engineering options to the livelihoods strategies of households.

In terms of project logistics a second issue to emerge has been the need for an external review group that both helps to ensure research quality output and provides critical feedback on policy linkages, and assistance in defining the most effective uptake and dissemination routes. This group has now been established and comprises Jon Lane (independent consultant based in Malawi), Tamsyn Barton (DFID-Social Development), Liz Jones (DFID-RLD), Meera Mehta (WSP-Africa), Mike Webster (WSP-South Asia), and Ravi Narayanan (WaterAid Director). During 2002 the group will be expanded to 10 members with four additional members drawn from potential users of the project outputs in Asia and Africa. It is hoped that a number of review team members will be able to attend the project review workshop in India.

A final major implication of the inception period has been the need to tie project outputs, where relevant, to wider research on Poverty Reduction Strategies. The WSP is keen to use the development of Water and Sanitation implementation within PRSPs to help mainstream and scale-up the implementation of DRA. To this end the SecureWater project is making a presentation to the regional workshop on 'Water Supply and Sanitation in Poverty Reduction Strategies' to be held in Nairobi in June. The wider research project behind this workshop being led by ODI and WaterAid will be a key point of reference on policy issues for SecureWater.

The table below provides a review of project purpose and outputs.

4.2 Output to Purpose Summary

Project Title: Secure Water: Building Sustainable Livelihoods for the Poor into Demand Responsive Approaches. Short Title: SecureWater		DFID Reference: R8034 ODI Reference: R72	Countries: Kenya, Sudan, Malawi, India, Sri Lanka
Report No: 1 (Inception)		Project start date: September 2001	Project end date: June 2004
Reporting period: July 2001 – May 2002			
Project Framework:			
Goal: Raise the well-being of the rural and urban poor through cost-effective improved water supply and sanitation; improve the availability of water for sustainable food production and rural development.			
Purpose: Increase understanding among interveners in the water sector of water-livelihood links, enhancing their capacity to eliminate poverty through demand-responsive approaches.			
Outputs:	Progress:	Recommendations/Actions:	
Phase 1 (Inception)			
1a) Concept Paper	Secure Water Concept Paper presented and disseminated widely at Bonn International Conference on Freshwater, Dec 2001.	Concept paper posted on project website www.securewater.org . Paper presented for discussion and feedback at dedicated side event at Bonn.	Detailed and constructive feedback received from Conference participants should inform design and conduct of activities in the main Case Study Research of Phase I.
1b) Inception Report	Inception report prepared and disseminated to research partners and wider reference group.	Inception Report prepared, based upon workshop discussions and findings, and literature reviews and scoping studies conducted in each case study country.	See revised log-frame outlining research activities for main research phase. Principal change is additional training component in Household Economy Approach
Activities:	OVis:	Progress:	Recommendations/Actions:
1a) Inception workshop in Nairobi to review concepts, methods, partnership arrangements, dissemination activities and to consult on case study sites.	Inception workshop held 10-12 th September 2001, Nairobi, Kenya.	Workshop attended by: research team members from ODI, ITDG, SC UK, research partners from 5 target countries, plus DFID, BGS and WSP Africa (see workshop report in annex).	Workshop discussions focused on concept development and methodological issues. Case study sites were identified and discussed. Further training in Household Economy Approaches prior to the Main Case Study research was recommended.
1b) Report on workshop and concept paper development including literature review	Workshop report completed and circulated to stakeholders. Policy reviews completed for 5 study countries.	Inception workshop report and executive summary completed and circulated to stakeholders. Policy reviews received from 5 study countries.	Ongoing review of related literature and developments in the water sector recommended
1c) Case study site scoping visits	Short scoping study reports received in 5 countries	Scoping studies conducted in 5 countries	Indian case study sites confirmed for main research phase
1d) Dissemination arrangements established for electronic and other activities; Methods workshop in Sri Lanka	Project website established Emailing dissemination list developed Methods workshop held	<i>Website active www.securewater.org</i> Draft distribution list completed Revised methodology included in Final Inception Report	Continue to build on and expand the scope of the project website. See dissemination plan Add new individuals and organisations to e-distribution list. Methods workshop clarified key research and decision support methodological approaches
1e) Prepare inception report: including full costed proposal for Phase I (main) Case study research and Phase II: Applied Analysis	Inception report and proposal submitted to DFID by December 2001.	Reporting deadline extended due to travel disruptions associated with events of September 11 th .	Report submitted end January 2002.

4.3 Project methodology

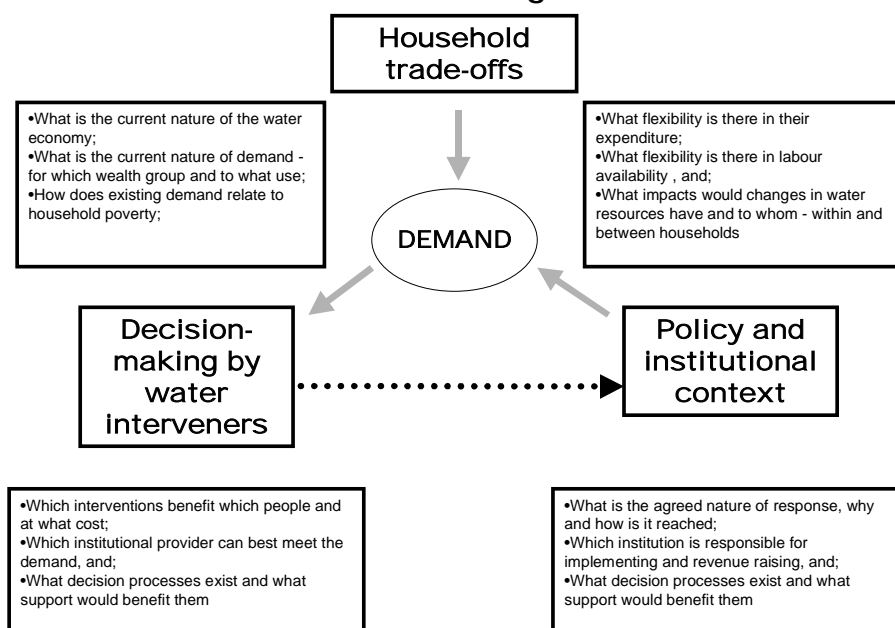
Project Methodology involves both the overall approach taken by the project (see diagram, below) and the detail of the research methods component. The project views the development of project methodology as part and parcel of the development of decision support tools. To this end key policy and intervention members of the research team have been present at both the Inception Workshop and the Methods Workshop held, respectively, in Kenya and Sri Lanka.

The following section summarises the Sri Lanka Methods workshop output, indicates the methodological directions being taken by the project and outlines the forms of decision support being addressed by the team. The next six months of the project will be critical in marrying together the case study research, developing the decision support tools and identifying the three key piloting opportunities. Piloting with interveners is due to take place from mid-2003 onwards for up to a year. The exact length and scope of the pilot exercise will be determined in consultation with interveners, but is likely to address the following issues:

- Improving the understanding of DRA, and the implications of adopting such approaches
- Improving the assessment, monitoring and evaluation of the water supply poverty impacts
- Building the capacity of decentralised decision-making bodies to identify and articulate the water needs of poor communities and of sector practitioners to respond
- Providing appropriate technical choices for the poor

The post-inception research comprises a Phase Ib Case Study Analysis (to December 2002); and Phase II Applied Analysis covering a further 18 months and including a piloting phase for decision support tools in three selected countries (to be chosen at the end of the main research phase in consultation with all project partners). The three-country limit is on the basis of probable piloting cost, however, should the cost not be over budget then piloting will be extended as far as possible. Where possible, piloting will take place on recently-established programmes or components thereof and will be related directly to experience of DRA implementation. Some piloting may take place on NGO-implemented projects that are donor-funded as well.

SecureWater: Methodological framework



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Retrospective analysis will seek to answer the basic question *how have interventions worked for or against the livelihood strategies of poor households, and why?* This will be based on detailed household and livelihoods mapping of the sites identified in scoping studies. Continued development of policy context analysis and linkages between demand for water and livelihoods will be carried out. Of key interest will be the issue of 'trade-offs'. The outputs of these case studies will answer questions surrounding how demand is articulated, what livelihood activities determine the pattern of demand (and household-level trade-offs) how the various institutional structures from the intra-household level upwards are linked to the development and implementation of policy from above. The case studies will seek to build understanding of the links to policy processes at local, sub-national and national levels. This policy and 'institution-mapping' is regarded as an essential part of the overall methodological approach of the study.

The presentation of initial findings at the Johannesburg WSSD (during the research phase) will stimulate input and critiques from other researchers and interveners and will assist the teams in finalising their outputs. This will help the second major feature of this phase from November 2002 onwards, namely the role of the Decision Support Tools working group, in tailoring outputs to policy and intervention environments as well as identifying piloting opportunities.

Both the Case Studies and the developing decision support tools will build into the applied analysis phase from January 2003, and will address the basic question *how can interventions be improved so that they better fit the livelihoods strategies of the poor?* This phase will use the output and process of the case study analysis to establish and pilot decision support tools for integrating SecureWater Assessment into DRA approaches, including new training materials, and methods of and approaches to understanding water-demand linkages and devising 'best-fit' service options.

Research partners in the respective countries on a quarterly basis will undertake the monitoring of these pilot approaches. Possible pilot opportunities include the WSP 'pilot districts' in AP, India, the development of the ADB's Third Rural Water Supply and Sanitation Project in Hambantota, Sri Lanka, the approach taken to rural water supply development in Darfur, Sudan, urban approaches to supporting community-led water supply and sanitation approaches in Nairobi and the development of district-level expertise in Salima, Malawi. Key questions to be asked could cover areas such as the impact on targeting of the poorest, the range of interventions that have been successful, the capacity constraints and time demands of using the tools, the level of demand articulation by specific groups within communities and the capacity to further scale up the approach. The research sub-group will develop specific monitoring indicators during the course of 2002, but their final form will depend in part on the different contexts chosen for the pilot projects.

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4.3.1 The Sri Lanka Methods Workshop

The Sri Lanka Methods Workshop provided an opportunity to train researchers, examine the input of the HEA methods to overall project development and to draft outline decision support tools. Held from 6-17th May near Colombo and in Hambantota District, the workshop combined classroom analysis with applied field research in two communities. The following team members attended.

Participant	Affiliation
Rajindra Ariyabandu	Water Resources Secretariat, Sri Lanka
Alan Nicol	ODI
John Seaman	Save the Children
Celia Petty	Save the Children
Deepa Joshi	University of Southampton
James Acidri	Save the Children Uganda
Sylvie Cordier	ODI
Tom Slaymaker	ODI
Ramitha Wijathunga	ITDG Sri Lanka
Alison Wedgewood	Environmental Economics UK
Roger Calow	British Geological Survey
Rebecca Kabura	ITDG East Africa

Hambantota Division in Hambantota District is part of the drought-affected southeast of the country. It is also an area where DRA is being implemented through the ADB's Third Water Supply and Sanitation Project. This enabled research methods to be tested against an area of considerable household vulnerability and policy implementation.

Theoretical issues raised

Discussion at the Sri Lanka workshop focused on whether the community as a whole can afford a proposed level of service, understanding which households cannot afford the option preferred by the majority and the threshold for sustainability if economic conditions deteriorate. The methodology combined analysis of the availability, access and use of multiple water sources in the village context, the key impact of gender issues at a household and community level on access and resources management, and the development of a HEA-based methodology as a tool to assess household ability to maintain financing of new water supply structures.

Following a 3 day introduction to Household Economy Approaches, the team carried out a short field study in Hambantota district to test the applicability of HEA techniques in the water sector, together with the development of data on multiple water sources at a household level and the impact of gender and other social aspects of water supply development.

HEA information is collected from individual and group interviews. In a standard HEA assessment, an initial classification of the community in terms of 'wealth groups' is undertaken. This classification is based on information from a range of community members and is used to derive a wealth distribution for the population. For each wealth group, a description of a 'typical' household budget is drawn up, based on group/key informant interviews. This includes information on sources and amounts of food income derived from all forms of household production, sources and amounts of cash income derived from the sale of labour and production, household expenditure on food and non food items, the markets for each traded commodity and an estimate of livelihood assets including livestock, cash, food stocks and other goods. The HEA data set therefore provides an overview of sources of income and expenditure, disaggregated by wealth group.

Steps in HEA analysis

The impact of changes in economic conditions (e.g. reduced income from crop sales or employment) is assessed as follows: The likely household deficit which will result from a given problem is calculated; the ability of the household to overcome the deficit is estimated (e.g. by selling livestock and labour, gathering wild foods, reducing non-food consumption). An estimate can also be made of the cost e.g. asset depletion, associated with a particular pattern of household response to a deficit. The calculations are usually done on a spreadsheet, or using dedicated software (RiskMap). The unit used for calculation is the kilocalorie (Kcal). The Kcal is used because it is common to find situations where there are important, non-traded goods e.g. milk and meat and because the larger part of income for many households relates to food.

Step 1. Calculating the deficit

If, for example, a household usually gets 50% of its income from food crops, a 50% fall in food crops will lead to a 25% fall in household income.

Step 2. Estimating the ability of a household to overcome the deficit.

This requires making allowance for: household food stocks; the possible expansion of income from wild foods; additional income from gifts; additional income from the sale of livestock, labour and other non-food production. An estimate of the extent to which any deficit may be met from household food stocks, wild foods and gift is calculated by simple addition: e.g. if the deficit is 50% and food stocks are equivalent to 25% of HH needs, the deficit would be reduced to 25%.

Additional income from the trade of livestock, labour and other non-food production for food requires knowledge of the price at which these will be purchased/sold. This is done either by estimating the probable price changes which will occur – usually based on local precedent, or using a simple linear supply/ price model of markets using RiskMap.

Celia Petty

The usual application of HEA is to estimate the likely effect of a ‘problem’ - e.g. a failure in crop production on the ability of households within a population to acquire sufficient food and/or maintain its non-food consumption (including education, health, fuel, soap, water and other basic goods). An HEA problem specification for a proposed DRA water intervention might address: the ability of a typical household to meet new water charges *under different economic conditions* (i.e. implications of between-year, and within year, variations in income); changes to household income, which might arise directly from improved access to productive water (and therefore the ability of the household to pay); or indirectly, from changes in wealth and employment (i.e. investment for the rich leading to improved employment opportunities for the poor).

In practice multiple scenarios can be developed based on different assumptions, to show a range of possible outcomes: e.g. scenarios can be developed on different policy assumptions such as assuming that livestock are not sold, or the household should retain sufficient cash to allow children to continue to attend school. The overall aim is to describe the connection between an event (e.g. crop failure; increase in production input costs; increased expenditure on water supplies), and an outcome where the assumptions, methods and uncertainties are explicit, the information is the best available, all information necessary to the argument is included, and the argument is accessible and open to dispute.

The core purpose of the field exercise in Hambantota was: to describe livelihoods and economy in the study area, in relation to access, availability and use of water; to implement a rapid HEA assessment; to explore the specific shocks/hazards facing producers; and to produce a model that could adequately predict the impact of shocks or changes on individual households or groups of households sharing common characteristics. In addition the model aims to account for

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accumulation and use of ‘security stocks’ (an essential part of the agro-economy of semi arid zones) – thereby indicating the sustainability of water expenditure between good and bad years - and the direct effects of seasonal and annual variation in water availability on production and the indirect effects on employment and household income.

Livelihoods analysis in Hambantota district

Interviews were carried out in two communities (Bellagaswewa (C1) and Kantawewa (C2)). Livelihoods in these two villages revolve around paddy cultivation. The economics of paddy cultivation tend to define wealth characteristics. Wealth in this area is essentially a function of three principal assets: land, labour and livestock. Richer households generally own paddy land, some of which they work themselves and some of which they rent out to middle and poorer households. The wealth of landless households is essentially a function of their ability to generate income from agricultural and non-agricultural labour, mostly either by renting paddy land or working for others. The majority of also cultivate some Chena¹⁰. Chena land is used to cultivate vegetables, mostly for own consumption. Livestock is a useful marker for wealth. Poorer households generally have few if any small stock. In middle wealth groups they often own goats and a few cattle and richer households are generally those owning larger numbers of cattle and buffalo.

The main characteristics of wealth groups that were common to both communities were as follows: **Rich:** Own cattle and rent/own paddy; undertake *chena* production; **Middle:** Access to paddy (1.5-3 acres, rented); own goats; *chena* production (1.5-2 acres); **Poor:** Access to paddy (0.5 acres, rented); *chena* production (1.5-2 acres); some agricultural labour; **Very poor:** *chena* production only (0.5-2 acres); agricultural labour.

Paddy cultivation in this area is ‘rain-fed’ i.e. surface water is collected in large storage tanks and released via irrigation canals. There are two main seasons *Yala* and *Maha*, relating to the main periods of rainfall, which peaks in April/May and Oct/Nov. The former is less reliable and only adequate for paddy around 4 yrs in every 10. The *Maha* is more consistent and forms the main season for paddy cultivation. Land preparation generally begins in December with planting in Jan/Feb and harvesting in April/May. In a good year a second shorter paddy crop is possible using *Yala* rains, planted in May and harvested in June/July. In a typical year poor *Yala* rains limit the areas that can be cultivated with a second paddy crop, instead paddy land is planted with vegetables. *Chena* cultivation is an important source of food and non-food income for most households. *Chena* cultivation is fed by *Maha* rains, which begin in Oct/Nov and in a good year several short vegetable crops can be grown.

In addition to Paddy and *Chena* cultivation middle and poorer households pursue a variety of other income generating activities, mostly within the village. These include firewood collection, brick making, sand carting and livestock herding and milking. A smaller number seek work outside the village e.g. seasonal labouring on large irrigation schemes and semi-permanent migration to work in garment factories in cities.

Typically for a semi-arid region, paddy-producing households aim to keep around one year’s supply of cereal in store. The banking system seems to be widely used for cash savings. Credit for agricultural purposes (up to R 20,000 repayable at the end of the agricultural season) is available from government banks. There are also a number of women’s credit and savings schemes that offer low interest rates. Interest rates from moneylenders can be up to 50%. Less well off households have access to state welfare provision, which takes the form of cash benefits that can be used to purchase staple foods from government cooperatives. The government of Sri

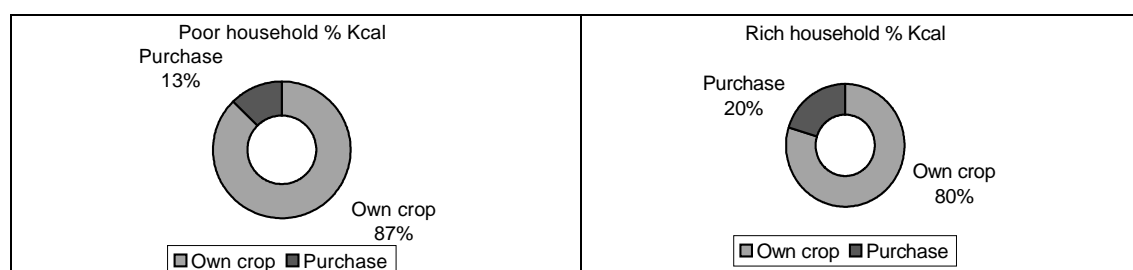
¹⁰ Chena refers to ‘slash and burn’ type rotational agriculture on the forest margins. Chena land is mainly used to grow rain-fed vegetable crops.

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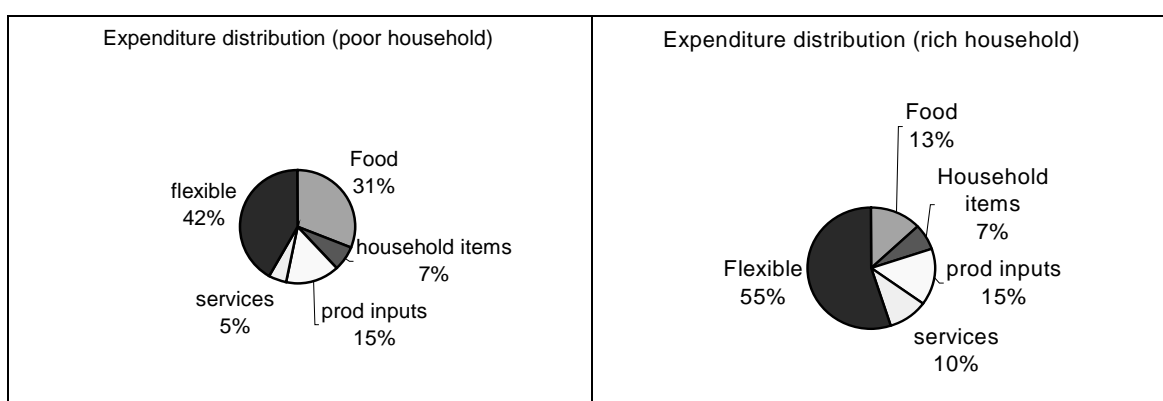
Lanka also provides free access to health services and education. Although there are some additional costs attached to secondary education (particularly to A-level standard) these are low compared to most other developing countries.

As in many other areas livelihoods in these communities are dynamic. A particular strength of HEA is the ability to capture these dynamics and trends. Hambantota district has experienced severe drought conditions since 1999, with failure of both *Maha* and *Yala* rains. As well as loss of cultivation, livestock numbers have fallen significantly since 1999. Although mainly attributed to the drought, heavy loss of livestock due to theft was also reported. Loss of crops due to elephant damage is an endemic problem, although it was not possible to quantify its extent during this assessment. Labour patterns are also changing, with increasing numbers seeking agricultural and other work outside the locality. A number of local garment factories employ young women (mainly school leavers, aged 17-25). There are fewer local opportunities for young men, although significant numbers have been recruited to the armed services.

The use of a combination of individual key and group interviews enabled rapid appraisal of the basic characteristics and economic dynamics of the main/potential sources of food and non-food income in this area and provided an understanding of the characteristics of good, normal and bad years and how different variables affect the productive activities of different households. Using this basic data set the characteristics of any given household type can then be modelled to derive a reasonably accurate calculation of food and non-food income and expenditure. Results for two typical households (rich and poor wealth groups), for 1999 (an average/good year) are shown in the following charts.



The poor household derives 87% of its annual kcal requirement from its own crop production and 13% from purchased food. The middle household produces 80% of its food needs and purchases 20%. Both households were able to retain a significant proportion of their income as food in store.



Analysis of expenditure shows that the poor household achieved 42% 'flexibility' in income, and the middle 55% 'flexibility'. Most of this 'flexibility' consists of rice or millet held in store. This system has enabled households in the poor and middle groups to maintain their food security during three successive drought years.

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Where relevant e.g. semi-arid African case studies, this data set can be expanded to show *intra-annual variation* in food, cash and labour through the calendar year (see labour calendar, below). Such information can then also be plotted against data on seasonal variations in water resource availability access and use to highlight temporal patterns of vulnerability. Crucially, given this basic data set it is then possible to model the *net livelihood impact* of changes in the availability of water in the household economy e.g. either as a result of drought or installation of a new water supply system. Impacts can be demonstrated in terms of changes in household expenditure (labour or cash) required to access water and/or changes in household food and non-food income resulting from productive uses of water.

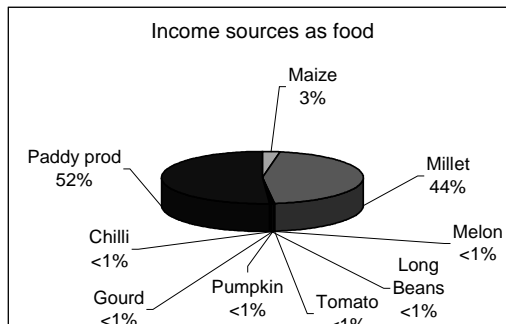
Agricultural labour calendar and seasonal availability of work

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Availability of agric. labour	18 @ 250/day	18 @ 250/day	22 @ 250/day	10 days @ 350/day	18 days @ 250/day	11 days @ 250/day	11 days @ 250/day	22 @ 250/day plus food	4-5 days	0	0	2-4 days @ 250/day
Land preparation				(Veg. on paddy land) Yala Paddy (4 yrs in 10)				Chena 30 days mainly hh labour	Chena			Ploughing with tractor 3000/acre mostly hh or ploughing/sowing 8 man days+ meals
Plant	Sowing mostly hh labour	Protection mostly hh labour			(Veg. on paddy land) Yala Paddy (4 yrs in 10)				Chena 14 days mainly hh labour	Chena		
Weed		Weeding/ Fertiliser mostly hh labour	Weeding/ herbicides 12 days hh labour			(Veg. on paddy land) Yala Paddy (4 yrs in 10)				Chena 8 days hh labour	Chena	
Harvest	Chena 30 days entire hh	Chena harvest 20-25 hh labour	Chena 12 days post-harvest hh labour	Harvesting			(Veg. on paddy land) Yala Paddy (4 yrs in 10)					Chena 30 days entire hh
Thresh					Threshing 7 days work (women)							
Other activities	Sand/ Bricks/ Calving/ Milking	Firewood/ Sand/ Bricks/ Milking	Firewood/ Sand/ Brick/ Milking	Firewood/ Bricks/ Milking	Sand/ Milking/	Firewood/ External Irrigation schemes	Firewood/ External Irrigation schemes	Firewood/				Calving

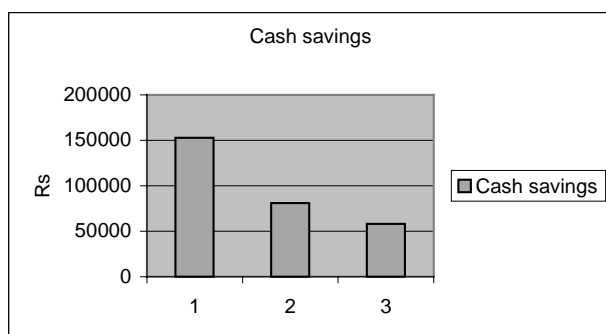
Such analysis can also be repeated for a series of years by household type in order to show *inter-annual variation*. The following hypothetical scenario shows the effect of a fall in paddy and non-paddy production over a 3 year cycle, based on a household renting 3 acres of paddy and with access to 2 acres of *chena*. Year 1 is a normal year producing stocks of 1000kg paddy and 50kg paddy. The following year paddy production fails completely and non-paddy production is

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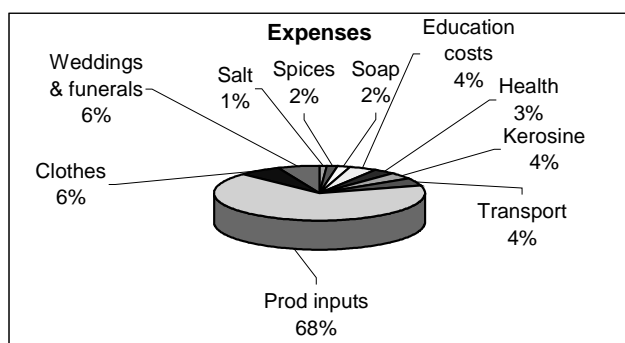
just 10% of normal. Year 3 paddy production recovers to 50% of normal and non-paddy production is also around 50%. This scenario is based upon the evidence of recent experience in the case study area. The first graph below shows the impact in terms of production in kcals/yr. The likely impact in terms of food security is shown by data on household food income sources as a percentage of annual food requirements.



Communities in the case study area have been able to cope with the effects of drought by drawing on rice stocks. However while they have remain food secure despite the drought the following chart indicates the likely draw-down on cash savings over such a 3-year period.



Even at the most basic level of analysis it is clear that periodic shocks such as the drought events which are common in this and many other semi-arid areas can have a substantial impact on the capacity of poor households to meet their basic food and non-food needs including basic services such as health, education and water. This demonstrates the importance of understanding inter-annual variation in income flows when assessing the ability of poor households to pay for basic services. The chart below shows a typical breakdown of household expenditure in a normal year and shows that an increase in any one of these costs, or reduction in income, is likely to have trade-offs in other areas of expenditure. However many of these expenditure categories are effectively 'inelastic'. Fieldwork suggests that in such circumstances children's secondary education is often the 'first to go'.



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The HEA model was adapted to demonstrate the impact of various scenarios on an individual household's capacity to meet its basic consumption and expenditure needs, and show the end of year surplus/deficit. An Excel spreadsheet has been developed to carry out these calculations and is currently under development by the SecureWater team. It is anticipated that the final version will form a part of the decision support output of the project (see below) and combine background data, accessible through 'pop-up' menus to help navigation around the spreadsheet data as well as ensure that the steps of analysis are easily followed. If this is developed further as a decision support tool for DRA a primary concern will be to ensure that it is accessible and easily interpretable by interveners working at all level.

In summary the modelling exercise demonstrated a method for assessing the affordability of a defined DRA intervention, in an environment where there are extreme variations in crop and livestock production, between years identifying typologies of households that will not be able to afford DRA solutions a) in a normal year and b) in a bad year. It is possible, by a simple process of household enumeration (i.e. classification of households according to household demography, occupation, and access to land and livestock) to estimate the proportion of households falling into defined wealth group categories in a good or bad year. This would, in effect, allow interveners to model 'water impacts' by household type, i.e. the impact for specific households of a particular intervention.

Water resources data

In tandem with household economy analysis, the research fieldwork also concentrated on issues of water access, availability and use. Key questions included: Why and how is access to water an important issue for HH livelihoods? How do changes in availability of water affect livelihoods? How do changes in livelihoods affect access to water? What can we tell about the most significant ways of supporting livelihoods through water supply interventions? Some of the output from the water assessment is included in the diagram on water and livelihoods linkage developed below.

Availability: A number of tools were used to determine the availability of water at a community level, including group meetings, village mapping and household interviews. As was expected, both communities used a variety of sources, ranging from communal wells, private wells, bowser, tanks and (in the past) tube wells. The key determinant of availability was seasonality, with the dry season affecting available tank water, related communal wells, but also triggered bowser provision from local government and the Mahaweli Scheme (on which land both communities were situated).

Availability at communal sources situated adjacent to the tanks was also a function of tank storage and, in the recent drought years, had been a particular problem. At the peak of the dry season when tank levels were at their minimum, some households combined to build hand-dug wells into the tank bed. This would provide a supply for the most critical period, but quantities were quite limited. In both indirect and direct ways, therefore, the availability of tank water affected available water for domestic consumption. Other sources of groundwater in both communities—small private wells in a few households and other communal sources—were affected by salinity. Water quality was therefore an additional and important determinant of availability.

Whilst it would be easy to draw simple conclusions about tank water availability, use in paddy production, and availability of water for domestic consumption, in fact the management of tanks and the impact on surrounding groundwater sources is probably quite complex. It is related to a host of issues, including the level of the bed and the permeability of tank walls. Given this

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complexity there were clearly important issues of domestic water availability related to the construction and rehabilitation of these structures.

Other important sources of water were the ‘bowsering’ operations run by the government and the Mahaweli scheme during the dry season (June-September). In spite of this provision water availability could still be a problem for some households, triggering attempts to access wider source options in neighbouring communities and towns. The trade-offs between access to these sources and alternatives (such as significantly reducing consumption) could be increased by unreliable bowser provision, as mentioned by a few households. There would also be significant relationships between willingness to pay for new service options and the reliability of tinkering operations.

Access: In both communities access to communal sources was open and not rule-determined (though there was some evident attempt at reducing washing and bathing at these sources). The impact of elephants in the area could affect access during some times of day and night, as would the pressure of people, particularly when slow recharge was a severe problem from June to September. At present the capacity to access different quantities of water was determined in part by household labour availability (a key issue in terms of the agricultural calendar (see above)) and the number and size of storage vessels held by households. Important trade-offs in time and money with uses of water appeared to exist. This meant that during the dry season some households were clearly unable to access water quantities sufficient for washing and cleaning and, instead, some members would travel by bus to town for washing. Transport of jerry-cans by bus would also incur an additional charge paid to the bus companies.

Access rules introduced by the new ADB scheme in the second community included membership on presentation of a payment, the capacity to fund connection to the ring main to your household and, in the longer term, the capacity to pay ongoing operation and maintenance charges through a block tariff. The key issues raised by this new approach are addressed in sections below. Suffice to say here that it was clear there had been significant uptake by households (with only a handful of households remaining outside the scheme) indicating that important benefits (in time, labour savings and increased usage) were probably being by the community. However, the technical design of the scheme raised significant issues, particularly given the siting of the collector well for the scheme adjacent to the existing communal well in the second community. Given this set up, recharge of the new scheme and the delivery of water would be contingent on the effective management of this new well, which, given its proximity to an existing ‘open access’ resource raised issues about use of the existing source. Would the nominally ‘open access’ resource be ‘closed’ if recharge of the new scheme well was found to be affected by use of the communal source? If so, what of households (perhaps the poorest) who would might elect to use the communal source if the cost of the new scheme became prohibitive (or if it broke down for any protracted period?)

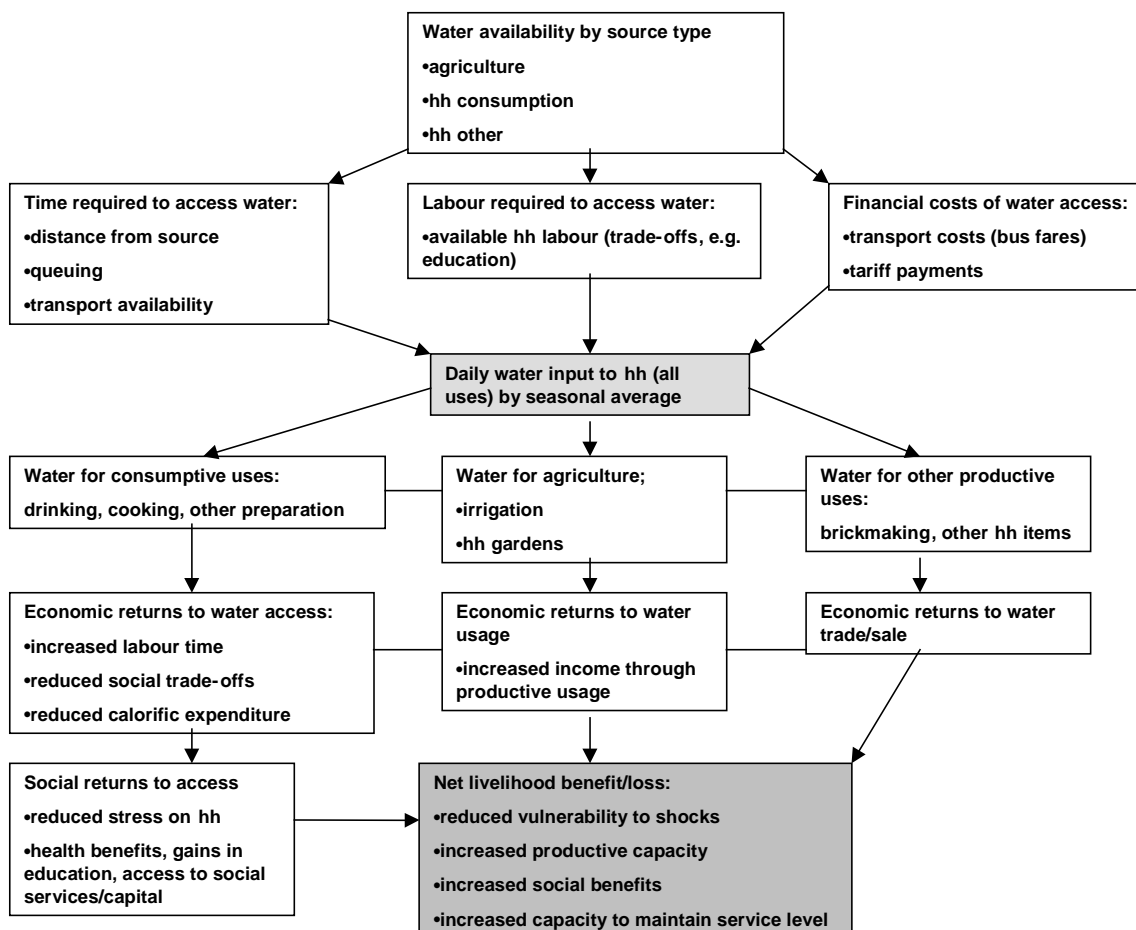
Use: There are important use questions raised by the sources in each community. At present the predominant use of water is for household domestic consumption—cooking, drinking and cleaning. Some productive uses were noted. It would be possible to develop the HEA analysis to indicate possible win-wins for household livelihood security if water use augmentation for productive activities (outside of agriculture, and including activities such as brick production) were made available through the implementation of a new scheme. Similarly HEA might be able to assess the trade-offs between decisions taken not to collect water for particular uses—e.g. washing—against travel to sources for washing and/or the combining of trips with other activities, particularly is an accurate assessment of the labour time implications were made based on the seasonal calendar given above.

The field data from the Hambantota case study provided an indication of the complexity of use versus access trade-offs, as well as how changes in availability of the source, including

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seasonality and inter-annual variation, could impact on the implementation of a new scheme at the community level. Addressing the complexity of the availability, access and use relationship (see the ‘Water Economy Model’, below) is one of the key challenges of the SecureWater Assessment.

Water Economy Model



Gender and water findings in Hambantota

In addition to the HEA exercise and water analysis described in summary above, complementary gender analysis was undertaken during the Methods Workshop. This analysis of the two case study communities helped to draw out the methodological links with HEA and provide early input on gender analysis to the development of decision support tools.

HEA has specific advantages in assisting in understanding the gender, water and livelihoods linkages. HEA classifies households into broad wealth categories based on the differential capacities of households to sustain lives and livelihood strategies. In contrast to the prevalent practice of interpreting wealth in narrow economic terms, wealth in this context refers to a household’s capacity to sustain livelihoods through income-generating and subsistence activities. The HEA as an analytical tool has an implicit gender focus as it takes into account the collective activities of all household members across different seasons, which contribute both to income generation and food subsistence. This process provides an understanding of: labour and opportunity costs of different livelihood sustaining activities performed by different members in a typical household; social and economic factors, which either constrain or facilitate men,

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women and children in different household categories in performing different activities identifies; collective and varied inputs required in performing these activities; and outcomes of these activities in meeting economic needs of the family, both in income and subsistence contexts.

At a broad level without going into intra-household details, the information generated by use of the HEA can be used to predict the impacts of these activities on both individuals as well as on social relations between individuals. This approach is particularly equipped to predict possible consequences of 'bad year impacts' on labour, and its related variables on different members of the household in relation to the activities they perform and remain responsible for. There are numerous ways in which HEA data could be used to plan water management interventions, including the use of such data to help predict the impact of increased or decreased water availability and access on:

- Overall household economy, which relates to water-dependent productive and non-productive livelihood strategies
- Labour and time opportunities and constraints of different individuals responsible for specific productive and non-productive water needs within households and
- Capacities and limitations of households to pay for different water services, taking into account seasonal variations and their impact on water availability and household economy.

An understanding of these issues would capture gender-water-livelihood linkages in different households and also the differential capacities of households to pay for water. In relation to current DRA approaches to water management and the focus on cost-recovery, this information is particularly relevant in planning and designing financially sustainable water management interventions.

Contrary to many social contexts both regionally in South Asia as well as in Africa, findings from the two villages in Sri Lanka show more co-operation than conflict in social relations between women and men. Across different wealth groups, women identified that men consulted them in taking decisions related to household economy. There appears to be less rigid specification in the allocation of domestic roles and responsibilities by gender. It was commonly reported and observed that men have distinct responsibilities for fetching water for domestic use. This was especially mentioned in relation to meeting water needs for livestock. This could be a feature specific to Sri Lanka, or a consequence of the persistent water scarcity in Hambantota in the recent past, resulting in high inputs of energy and time in fetching water; the economic priority in meeting water needs for livestock and above all, lack of employment opportunities for men. The findings thus need to be corroborated with observations elsewhere in the country.

Household case studies show an equal sharing of *chena* and highland vegetable cultivation responsibilities and benefits incurred from these between women and men. Women especially identify the economic returns of highland cultivation (kitchen gardens) and the positive impacts these would have on their lives and livelihoods. However, sectoral priorities for providing water have been largely restricted to provision of water for irrigating paddy fields. The benefits of irrigation for paddy cultivation are seen to be largely peripheral to the landless, who constitute a significant proportion of the rural population. Labour inputs in paddy cultivation are concentrated over small periods of time and this restricts opportunities for meaningful productive gains from agricultural labour for both men and women, amongst the landless poor. Also significantly, the first signs of gender disparity are seen in the unequal allocation of roles and the unequal gains in incomes for women and men in paddy cultivation.

Women distinctly prioritised their need for water for highland vegetable cultivation and this demand is ignored in both irrigation and drinking water supply schemes. The ADB-supported

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drinking water supply programme (see below) being implemented in one village has not identified, nor planned to deliver water needs in relation to vegetable cultivation and livestock farming, both of which are the primary livelihood sustaining practices in these villages. Provision of safe and adequate drinking water would definitely address basic needs, yet there are no tangible links that show the provision of 'drinking' water will supplement household economies and therefore the ability to pay for improved drinking water services.

Findings from the field show equal access to education for girl and boy children, a factor that is positively different from many other social contexts. The struggle to access adequate water in these typically agrarian communities is however seen to distinctly negate significant inputs in education by the government. There appears also to be equal social mobility and little gender disparity in potential productive roles for adolescent girls and boys. Yet, impacts of equal social mobility and similar gender responsibilities have not always benefited girls. There were many stories recounted in the two villages, woven around the social, economic and physical exploitation of young girls in garment factories. This questions the observed equality in social relations; points out evolving social relations in the urban context and more strategically the lack of policies and strategies to support presumably traditional egalitarian social relations. A mother of two young girls remarked, "If there was adequate water to cultivate our fields, we would not send our daughters to these factories." Yet, these stories have not affected her decision to send her elder daughter to a garment factory and in fact the younger daughter waits to pass 'O-level' examinations to join her elder sister in factory work. Findings from the field also show that as a consequence of fragile agrarian livelihoods linked to unpredictable and unreliable sources of water and the absence of other possibilities, many young men are forced to seek employment as soldiers. This draws attention to water-livelihood links and the desperation of families to survive, often at high personal costs to some members.

Apart from seasonal agricultural labour there are few other economic opportunities for women. In the prevailing situation markets and other establishments which offer employment opportunities are far and transportation costs are high. Further, while men assist, women hold primary domestic responsibilities, especially childcare and all these factors collectively inhibit women's involvement in productive labour outside the household domain. These findings underscore the significance of water-poverty-gender links and the potential of economic and social gains from provision of adequate, reliable and appropriate water, and therefore the opportunity to address these through water management interventions that realistically explore and address 'water needs and demands'.

Focusing on gender is not meant to be a focus on women but on both women and men and the way they make decisions, share tasks and complement each other in a variety of roles. There is therefore a need to desegregate, interrelate and activate so that women and men in poor communities are involved in projects which more accurately reflect their community context, needs and priorities.

DRA in Hambantota and decision support development

The applied methodological development in Hambantota helped SecureWater to develop possible decision support tools. In addition to the ongoing development of the spreadsheet mentioned above as part of the SecureWater Assessment 'toolbox', the Methods Workshop also helped to identify an outline of a SecureWater Assessment Manual (which could also form the basis for future training materials). The following section summarises the findings on water and DRA policy during the Hambantota field visit and outlines the form a manual might take and the possible critical entry point for this form of decision support. It is based on discussions at the District level with interveners, at the community levels with key informants and households, and within the team.

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The demand-responsive approach in Hambantota: The third ADB Water Supply and Sanitation Project (WSSP) began in 1999 and covers six districts in Sri Lanka. The total countrywide budget is \$129 million, 62% of the total project funds are provided by the ADB, 18% by the Government of Sri Lanka and 6% by the community. NORAD and the Government of France provide the remaining 14%. The project in Hambantota district has a total allocation of Rs. 800 million (\$9 million), will cover 9 small towns and 155 villages with a total population of approximately 200,000. This equals 4,000 Rs per person, or 20,000 Rs per household, although project management costs are included within these budgets. The project also includes a sanitation, hygiene education and environmental component.

Goal and Objectives: The overall goal of the project is to improve the health and well being of approximately 1 million people through the implementation of water supply and sanitation program in accordance with national and project policies. The project is a “Community/people centred project controlled by a demand responsive approach.” Planning, design and construction involves government, Pradesiya Sabha (PS), Partner Organisations (PO’s) and beneficiary communities working through community based organisations (CBOs). The project should involve “systematic water resources planning to maximise use of water resources”, although it is not clear whether this includes all productive uses of water or only domestic resources.

Institutional Set Up: There are essentially four levels of management within the project structure; at the national level is the Project Management Unit, a steering committee within the NWSDB; at the district level is the Project Implementation Unit, and at PS level is the Divisional Implementation Unit. For example, Hambantota district has 8 staff at the PS level that supervise the partner organisations. PO’s will provide approximately 72 staff within Hambantota district whose primary role is liaison between the community and the other implementation units and communication of the project process, responsibilities and progress to all households within the community. At the community level there should be a managing committee of the CBO, selected by the community.

Design and Implementation: The basic implementation of the project comprises the following key steps:-

Initially, there is a public awareness campaign, this is intended to cover the whole of the first batch of villages in the district, it involves the use of posters and loudspeaker vans. A representative from the PO visits each community to meet with existing community leaders to arrange for an open-access village meeting. At the first meeting the basic project objectives are discussed. The community are asked to form a CBO, with an executive committee, and told that whichever water supply system they select they will be required to contribute 20% of the total capital costs plus all operating and maintenance costs. At this stage the community has not officially been selected for the project. Every household is required to fill out a form called the ‘Application For Access to Water’, which asks, *inter alia*, about household size and ownership status, types of water source used, the uses of the water sources and whether the household is willing to pay 20% of the capital costs (as equity) and 100Rs as a joining fee plus 5 Rs per month? The size of the 20% contribution is not discussed.

The forms are completed by all villages in the first batch and used by the PIU to prioritise the selection of villages. Criteria for selection include the proportion of households completing the form and joining the CBO, or Society, and the levels of existing supply. The final selection of villages and small towns for participation in the project is carried out during a divisional committee meeting attended by local politicians from the PS’s, project staff, NGOS and partner organisations and staff of NWSDP. It is anticipated that approximately 40% of all villages in Hambantota village will be covered in this programme, therefore 60% of villages completing the application will not be accepted.

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Once a village has been selected, a technical member of staff from either the PO or the Project Implementation Unit visits the community and carry out a technical assessment of the feasibility of various water supply options. In principle only *feasible* water supply options are discussed with the community at the second meeting and the community then select their preferred system. How the community selects their preferred technical option is not made clear.

The technical officer carries out a costing exercise of the preferred option, but also costs at least one other option in case the preferred option is too expensive. The cost contributions for both capital and O&M should be presented to the community along with each household's required labour contribution. The community make a final decision about their preferred water supply option. It is not clear whether some households can select rainwater harvesting as an option instead of the piped scheme if the majority of the community can afford, and prefer the piped scheme. Maximum subsidies available, per household are:-

- Piped scheme – 15,000 Rs
- Private dug wells – 9,000 Rs (The subsidy for private wells is higher because ADB were keen to promote them. They believed that private wells were more likely to be better maintained).
- Community dug wells – 5,000 Rs
- Rainwater harvesting – 12,000 Rs, but an additional 15,000 Rs per household is available for houses without a suitable roof material or area. The CBO decides which households can receive this additional subsidy.

If the piped scheme is more than 18,000 Rs in total the village is told that they must select a different option. This is to prevent individual households contributing more than 3,000 Rs in cash. However, it is expected that in villages, households can contribute between 20-30 days in labour, which is valued at 250 Rs per day instead of cash, although some cash contribution is expected. The community contribute labour and the preferred options are constructed over a period of up to 15 months. The PO's should train committee members of the CBO in O&M, systems management, book-keeping, billing etc.

The committee are voluntary, and are required to manage the water supply system when it has been handed over. This requires employing at least one full-time water manager at a cost of 3,0000 Rs per month to read meters, issue and collect bills, carry out simple maintenance, maintain the accounts and report to the committee. The CBO will pay other contractors or the NWSDP for major repairs.

Implementation in Katawewa village: According to the PIU in Hambantota, the project in Katawewa is 25-50% completed. The following sections discuss individual perspectives and understanding of the project in terms of its implementation, roles and responsibilities of the community, cash and labour contributions required and management systems in place. It demonstrates the level of interaction and information sharing between project interveners and the members of the committee and other households not involved with the committee.

From the perspective of Committee Members: The project in Katawewa began in March 1999 with the first community meeting. The community meeting comprised the whole GS division, approximately 150 household in 3 villages. A man from the "water board" attended the meeting and explained the scheme and discussed the various water supply options. At the first meeting the executive committee of the society was elected. Six people were selected to be on the committee from Katawewa.

The overall committee is comprised of between 13-18 members from all 3 villages. The four men on the committee from Katawewa thought it was 10 men and 3 women, the female secretary from the Katawewa thought that there were 18 members made up of 6 members from

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each of the three villages within the society. It is clear that the committee members were already active “leaders” within the community, involved in the Farmers Association or the Women’s Federation. The community did not vote for the committee. During the discussion with the four male committee members from Katawewa, although asked explicitly about female participation, they did not acknowledge that there was female member on the committee who was also from the same village.

Two piped schemes are managed by the same CBO. One scheme covers 48 households in Katawewa plus 23 households from a neighbouring village, the second scheme covers approximately 50 households. In total 119 households are covered by the schemes in the GS division out of a possible 148 households. (Committee Secretary)

Option Selection: At the first meeting the community decided that they did not want the rainwater harvesting, tube well or dug well options, but instead preferred the piped scheme. How this decision was made is ambiguous. This decision was made without knowing or understanding the cost implications of the scheme for each household. The committee did not know whether a piped scheme was feasible given the specific cost parameters set by the project, they were unsure whether a technical feasibility study had been undertaken to assess water sources and physical supply.

Community Contributions: The community completed the household forms over a period of a few months, in total 45 were completed, and the joining fee of 100 Rs paid. In 1999, households began paying 5 Rs per month towards the CBOs administration costs.

At the second meeting the community were informed that their capital cost contribution would be 500 Rs per household plus 21 days labour to dig approximately 45 m of trench, or assist in digging out the new storage well. The total subsidy per household was 14,000 Rs, which means that the total cost per household is 17,500 Rs. Households are required to contribute 500 Rs in cash and the rest in labour. At 250 Rs per day this should require 12 days labour per household. Estimates vary, but on average each household has contributed approximately 22 days – equivalent to 5,500 Rs at the male unskilled labour rate. The committee members have not yet received any financial or budgetary training and did not know the name of the partner organisation liaising with the community. One person from the village had received some technical training. The committee considered all interveners involved with the project as “from the Water Board”. They were aware that the water would cost 15Rs per m³ for the first 15 m³ and then 20 Rs per m³, but were unaware of whether this would cover major repairs or electricity. The committee member did not know the additional costs that each household would be required to make to connect their houses to the mains pipe and to purchase the taps.

Membership and Exclusion: 48 households are members of the CBO from Katawewa, 6 (or 7) households are not members for various reasons. Apparently, most of these households are newly weds, still living with their parents waiting to build houses and move out. The committee has decided that new households with close relations in the village must pay 7,500 Rs to join the piped water scheme, and outsiders moving into the village must pay 15,000 Rs.

Management and Sustainability: Delays in construction are thought to be due to a problem with the national electricity board because a new/improved transformer is required to provide the energy. The committee were unsure about the amount of electricity that would be required to pump the water or the unit cost, they have written to the water board requesting that the electricity costs are paid for by the water board.

Finally, there was no knowledge concerning the volume of water that would be supplied once the scheme was completed. How many hours per day would water be provided? How many litres per household? From the perspective of others in the community most people interviewed

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had some knowledge of the water supply scheme but detailed information was patchy. The following key issues arose during interviews with household members:-

- Most people interviewed were unaware that other options had been offered at the first meeting or that a variety of subsidies were available and that other options would require less labour, less maintenance and less capital cost contributions
- A female-headed household had not contributed any labour but were aware that they had contributed some money. They were not required by the committee to pay more cash in lieu of labour
- There was confusion over the reason for paying the 100 Rs joining fee when the Application for Access to Water was handed in. One lady had paid 115 Rs
- Most people had missed meetings, or were unaware that meetings were being held
- No-one knew how much they would be required to pay to connect to the mains pipe or the amount of additional labour required
- No-one knew how much water they would receive or the tariff that would be charged
- Some interviewees thought that the water board would carry out the O&M of the system, collect the fees and were unaware of the committee's important and long term role in ensuring the sustainability of the scheme.

Livelihoods and Sustainability Issues:

Information Sharing: Individual households have not been kept well informed about the progress, project structure, cost and labour implications of the project. This has worked on two levels: the partner organisations have not communicated the project process effectively with the committee and the committee members have not discussed important details with each household. The committee might be unaware of the need to provide full information on new concepts such as water tariffs, capital costs, water supply volumes, long term O&M and financial management etc. with the rest of the village. They may be unfamiliar with these concepts and the practical implications of these processes themselves

Option Selection: The choice of technology was to some extent pre-determined, and the decision made without an estimate of the cost to each household

Cost and vulnerability issues: The subsidy policy set out in the project objectives is regressive and favours richer households. Households selecting a community well are given a maximum of 5000 Rs whereas households selecting piped connections can receive up to 15,000 Rs. If 15,000 Rs was available for all options, the percentage of capital costs contributions would vary accordingly– thus presenting a more progressive and pro-poor subsidy policy. For example if 15,000 Rs was given to 20 households selecting a dug well this might cover all capital costs.

The additional capital costs and running costs have not been made clear. Will all 48 households in the village be able to afford the additional pipes and tap? One estimate made by a household living near the road was 3,000 Rs on pipe, connectors and the tap. Will credit be available for the additional capital costs? There has been no consideration of cross subsidy within the village. All participating households were required to pay the 600 Rs, plus 5 Rs per month. It was not possible to provide more labour instead of cash. Similarly, no cross subsidies are to be provided for poorer households to assist in purchasing the pipes and tap. Households that live further away from the road will incur much greater costs. The tariffs appear to be very cheap, and are unlikely to cover major repairs, the 3,000 Rs per month salary for the water manager and electricity costs.

Management: The implications of managing the new system do not appear to be fully understood. The water manager, supervised by the committee, will have enormous responsibility for all aspects of the system - financial, managerial and technical.

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The committee are voluntary but will be required to hold monthly meetings, audit the accounts, double sign all bank withdrawals, supervise the water manager and make important decisions relating to all aspects of the system. The PO will train this committee, although the Secretary has already missed some meetings and had gaps in her knowledge. What happens in 3 years time when a new committee is chosen/self selected? Will the handover provide them with the necessary skills to manage a piped system successfully? Will other people in the community wish to take on such a time consuming task? The committee will have the authority to cut off the supply of households that are 3 months late paying their water bill. In small communities making such a decision will be difficult and could lead to discord within the village. The alternative sources within the village may become depleted (see below) leading to severe hardship for disconnected households.

Exclusion and Access: The 6 households outside the scheme will be required to pay large sums of money in cash in order to join the scheme. This presents a large barrier to access for all future households and young married couples from poorer families may be permanently excluded from using the piped system. What will happen to future water supplies to households outside the scheme? The new well has been built adjacent to the main village well and could affect groundwater levels adversely. The water security of excluded households is therefore likely to worsen as other households use more water from the piped scheme.

Water Supply Constraints: The supply of water, particularly in the dry season has not been addressed at the community level. (Have technical studies by interveners determined the physical capacity of the supply?) Households and the committee do not know how much water they will receive each day. Will supply be sufficient in the dry season when the recharge rate of the current well causes 1-2 hour queues and supplies approximately 20 litres per household per day during August and September? The project has not considered all productive uses of water. In Sri Lanka, domestic water supply is distinct from irrigation supply, but in other countries this is a very important issue. Private household connections might be used for garden irrigation or for non-seasonal crops, particularly in fields next to houses. This increases the strain on the water supply and could lead to periods of complete system failure during the dry season.

The implementation of this project has highlighted how the reality of implementing demand responsive projects can prove difficult. In particular, ensuring the future sustainability of the project in terms of financing, management and participation by vulnerable, poor households, requires a greater understanding of the water-livelihood-income linkages occurring across time (months and years) within the community. It has also shown that there is a considerable gap between DRA as policy and the practical implementation on the ground. Some of these 'gaps' and constraints are summarised in the following table:

DRA in Theory and in Practice

DRA in Theory	DRA in Practice
Government has a facilitative role, sets clear national policies and an enabling environment.	DRA has been included in many national policies, but the concept of “cost sharing” has been misconceived and is often included in national policies instead. Cost-sharing can be highly regressive and is not flexible enough for projects where large sections of the community cannot afford the cheapest options.
Communities, households and individuals are enabled to make an informed choice of whether they want to participate in a project.	For large schemes, villages and small towns may be required to “prove” their demand and compete with other villages and towns for the opportunity of participating. Poor awareness raising and vulnerability assessment of communities means that less vulnerable communities are unable to articulate their demands. Often the selection of villages involves filling out forms or questionnaires with inadequate assessment of real demand or need.
The community has the responsibility for making choices on how, when and with whom to maintain and operate the service. Investment decisions made by the communities include choices on institutional arrangements (Mangochi Statement)	Usually, the project imposes a specific O&M management system on the community. Increasingly, given current trends towards decentralisation, DRA projects recommend that the community <i>must</i> manage and operate their own water supply system through village water committees, CBOs or water user associations. Options for management by the private sector, local government, NGOs etc. are rarely offered. Communities may be able to contribute cash and/or labour to a scheme but it may be preferable to handover responsibility for collecting bills, maintenance, and financial management to a separate organisation.
Communities are enabled to make an informed choice of the types of water supply option they would prefer.	Recent examples of DRA do offer participants a choice of technical option. However, sometimes options are offered that are technically impossible, or unrealistically expensive, raising expectations of the community unnecessarily. If individuals living in close proximity select different options the water supply system can prove difficult and more expensive to design; alternatively households selecting less favoured options are forced to reconsider their choice. In many situations there may only be one “best option” and so a demand assessment might be a waste of effort.
Communities are told the price of the various options, and the contribution, (both capital and O&M) that they will be required to make <i>before</i> they select their option.	Options are offered with inaccurate costing, contributions rates that are unrealistically low, or without any prices at all. A widely held misconception is that all households will want the highest service level. However, where clear prices are given, along with a description of the benefits of each option and a clear explanation of all future cost, time and maintenance requirements individuals often choose “lower” levels of supply.
Users are involved in the development and subsequent location of new options.	This rarely occurs because considerable time may be needed to discuss concepts and interpret perceptions, users may not have time to participate and focus groups may be dominated by an elite.
Users select appropriate options according to their ability and willingness to pay for them.	Wealth differentials within the community are not explored; powerful interest groups or members of higher castes may represent the “community”, through the water committee. Poorer households are unable, (or prevented) from participating in collective decision-making. Consequently, the poorest households cannot afford the option(s) selected, even if it is the lowest cost option. Poor communication means that project interveners are unaware of this situation. In Simpali, Nepal 20 low caste families could not afford to provide the required cash, or labour contribution and were prevented from using the new public taps.
DRA enables more effective use of subsidies and cross subsidisation, within, and between communities.	Within communities it is more common for all households to pay the same price for water. Cross subsidisation within a village or informal settlement is difficult to administer – particularly as wealth groups and households within communities constantly change. Criteria for assessing those needing the subsidy are not easily defined or measured unless skilled vulnerability assessments take place.
DRA facilitates “cost sharing” as an avenue for the mobilisation of resources	Cost sharing has been misinterpreted in national and local policies, and in project implementation strategies. When communities are expected to contribute a defined percentage of the capital cost and the percentage is the same for higher and lower level options, more expensive options, (which richer households are likely to opt for) receive a higher real subsidy. This is a regressive and does not reflect ability or willingness to pay. The contribution per household should be based on ability to pay. If a project provides 80% of the capital costs for a piped scheme, the same real cash amount could probably provide a 100% subsidy for cheaper options. A fixed cash sum should be provided per household independent of the option they select, alternatively, a higher cash sum could be provided to poorer households.

Alison Wedgwood

The SecureWater Assessment Manual

The analysis of policy implementation and the SecureWater Assessment of two communities indicated the role for a SecureWater Assessment manual. This would form a key early decision support project output and would be developed in tandem with the project case study development. The outline of the manual prepared at the workshop is presented below, followed a summary table of potential points of entry for decision support to interveners and policy makers.

1. **Introduction** – Why this manual?
2. **DRA – Theory and Practice:** provides an analysis of DRA implementation in theory and in practice, identifying key areas of concern throughout the project cycle and across all intervention and policy levels.
3. **Water and livelihood linkages:** provides a short theoretical summary for understanding water and livelihood linkages in terms of intra-household, household and community demand for and use of water resources.
4. **Techniques and methods of SecureWater Assessment:** outlines the techniques and methodologies of SecureWater Assessment (SWA) developed during the Secure Water Project.
5. **Application of SecureWater Assessment:** addressing concerns raised in Sections 2 and 3 within the project cycle and policy development processes
6. **Case Studies:** case studies and experiences of piloting SWA in a number of countries in Asia and Africa focusing on the simultaneous achievement of more pro-poor outcomes and sustainable financing.
7. **Appendices:**
 - a. pro-forma forms for undertaking village and household level SWA surveys;
 - b. tools for calculating and assessing appropriate service level options;
 - c. tools for helping policy makers determine the most cost-effective and focused implementation strategies
 - d. methods and formats for displaying the data and communicating complex information on financing and management of service level options by interveners to communities and/or households

Possible types and levels of support to policy makers and interveners provided by SecureWater decision support tools:

Stage/Level	Options for support
Policy (national-level)	- demonstrates the most cost-effective way of addressing water policy issues - assists the process of shifting from a supply-led government project to a demand led community project by emphasising the potential positive impacts on livelihoods of the poor
Overall Project Design (national/donor)	- helps to inform the broad parameters of water supply service options - provides a transparent and defensible rationale for decisions on the allocation of financial resources between districts.
Project Planning at sub-national level (state, district)	- shows most appropriate set of service options in a given livelihoods context - assists in training of district technical staff who will be carrying out costing exercises in villages

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Stage/Level	Options for support
Design at project/local council level	<ul style="list-style-type: none"> - provides accurate assessments of livelihoods impacts of different options - informs decision on realistic options village by village based on set of livelihoods criteria - provides realistic assessment of ability to contribute cash & labour across wealth groups for capital and O&M contribution between seasons and across years - provides project interveners with a greater understanding of ability to pay ongoing operation and maintenance costs addressing issues of long-term sustainability - building in and systematising livelihoods-resource links to social capital, village institutions and management skills can assist in designing appropriate management options
Planning and design at village level and household/C BO/ intervener interface	<ul style="list-style-type: none"> - improves process of informing households about options via wealth groups, gender, etc - improves process for making communities aware of costs and benefits of technical and management option
Monitoring and evaluation	<ul style="list-style-type: none"> - assists in monitoring and evaluation of livelihoods impacts through assessing increased (or decreased) access for production and consumption across wealth groups - provides analysis of trade-offs, and the impact of external shocks

4.4 Workplan and staff inputs

The key country researchers and organisations are included in the table below. In addition, Alison Wedgwood will continue to provide expert consultant input on demand assessment and decision tool development over the next phases as well as linkage to related research being undertaken on 'Designing for Demand'. Roger Calow will continue to provide policy analysis and natural resource economics input as well as linkage to key water sector work in India and Palestine. Celia Petty of Save the Children UK will continue to provide input on methodological development.

Alan Nicol will provide overall supervision of research activities in the case study countries with support from ITDG in the UK. He will continue to have research assistance on preparation of publications, development of dissemination and uptake outputs, and organisation of events and activities by an ODI-based research assistant.

Country	Principal Researcher	Organisation	Study location(s)
Malawi	Linda Milazi	WaterAid, Malawi	Salima District
Sudan	Yousif Abaker	SC UK, Sudan	North Darfur
Kenya	Josiah Omotto	ITDG, Kenya	Nairobi
India	Deepa Joshi	Southampton University	Andra Pradesh and Orissa
Sri Lanka	Rajindra Ariyabandu	Water Resources Secretariat, Sri Lanka and ARTI	Hambantota district

The workplan for the remaining research phases is presented in the table given below. Main periods of staff input are given in the accompanying table

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4.4.1 Workplan and staff inputs for SecureWater Main Research Phase

Outputs and activities	J 02	F	M	A	M	J	J	J	A	S	O	N	D	J 04	F	M	A	M	J
Phase 1b (main research)																			
Inception report competed for DFID (Ph. 1a)	•	DFID review																	
Case study work starts in six sites				•	•	•													
Methods workshop / presentation to IWMI (planned for Sri Lanka)				•															
Interim Reporting to DFID						•	•	•											
Case study work continues						•	•	•	•	•	•	•	•	•	•	•	•	•	•
Research decision-support group drafting						•	•	•	•	•	•	•	•	•	•	•	•	•	•
Interim case study reports																			
Ongoing dissemination activities (Web)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Research network and forum established and functioning																			
Presentation to Johannesburg WSSD									•										
End of Phase I workshop in India																			
Workshop Report to DFID																			
Phase II (Applied analysis)																			
External Review group reviews draft decision-support tools																			
Case study and concept briefing paper drafts ready for review by External Review group																			
Case studies and briefing paper published																			
SecureWater meeting at Kyoto, III WWF																			
Mainstreaming through training activities in all countries																			
Piloting of tools in three country projects																			
Piloting quarterly review process																			
Book publication																			
Six journal articles published based on case studies																			
Final project workshop in Sudan or Malawi																			
Project completion report to DFID																			

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4.4.2 Revised Project Logframe

Narrative summary	Measurable indicators	Means of verification	Assumptions
<p>Goal:</p> <ul style="list-style-type: none"> To raise the well-being of the rural and urban poor through cost-effective improved water supply and sanitation; and to improve the availability of water for sustainable food production and rural development 	<ul style="list-style-type: none"> National and subnational poverty indicators indicate more productive use of water, reducing household poverty 	<ul style="list-style-type: none"> Government and donor reports and national and sub-national poverty statistics 	
<p>Purpose:</p> <ul style="list-style-type: none"> To increase understanding among interveners in the water sector of water-livelihood links, enhancing their capacity to eliminate poverty through demand-responsive approaches 	<ul style="list-style-type: none"> Decision support tools taken up and being used by interveners in five countries by the end of 2003 in order to develop sustainable livelihoods approaches to water sector development Case studies and methodologies used to improve DRA techniques being used in five countries 	<ul style="list-style-type: none"> Donor country strategy papers and Government and NGO Sector development plans influenced by tools Recorded circulation of case study materials and publication 	<ul style="list-style-type: none"> Continued emphasis on demand responsive approaches; Institutions receptive to research outputs
<p>Outputs:</p> <p><u>Phase 1a (Inception)</u></p> <ol style="list-style-type: none"> Concept Paper, incorporating literature review Inception report, incorporating research methodology framework, collaborative arrangements and dissemination plan <p><u>Phase 1b (Main case studies)</u></p> <ol style="list-style-type: none"> Six case-studies on water and livelihoods, and one on sanitation and livelihoods in an urban context, in versions adapted for different capacity building contexts Sustainable Livelihoods-based tools developed for decision-support, monitoring and demand assessment tools to contribute to pro-poor sectoral decision making Forum established for institutional collaboration to develop sustainable financing mechanisms and appropriate technological choice for poor communities Dissemination of research findings, tools, training materials, through broadcast video, electronic media, journals oriented to interveners as well as the research community 	<ol style="list-style-type: none"> Concept paper presented at Bonn and disseminated widely including posting on project web site www.securewater.org Inception report written and disseminated to research partners and external review group Case studies being used in capacity building contexts in at least two countries within one year of end of the project Pro-poor decisions made by at least two key intervening agencies as a result of exposure to these tools under piloting exercises and wider materials developed under the project, within a year of development Interveners engaging with ideas from the project as a result of participation in research, workshops and interactions with dissemination vehicles Awareness increased among target institutions of issues, approaches and methods relating to livelihoods research in water supply and sanitation development 	<ol style="list-style-type: none"> feedback received on concept paper feedback received on inception report to DFID; Feedback from collaborating agencies Feedback from collaborating agencies, especially training institutions Six monthly project reports to DFID; circulation documentation; web pages used Project Reports to DFID; uptake appraisal of materials; distribution lists; web pages used Project Reports to DFID; uptake appraisal of materials and references to the project at key water and sanitation sector events 	<ul style="list-style-type: none"> Government ministries and local stakeholders continue to be receptive to research Vested interests do not prevent capacity being raised Economic and socio-political environment continues to be suitable for research Infrastructure for communication between collaborators functions adequately Communities are willing and able to give their time and energy to participate in research case studies.
<p>Activities:</p> <p><u>Phase 1a (Inception):</u></p> <ol style="list-style-type: none"> Inception workshop in Nairobi to review concepts, methods, partnership arrangements, dissemination activities and to consult on case study sites [completed] Report on workshop and concept 	<ol style="list-style-type: none"> Inception workshop held by end September 2001 [completed] Inception report and concept paper, collaborative arrangements, literature review and methodology by end January 2001; Concept Paper presented in Bonn [completed] 	<ol style="list-style-type: none"> Participants list outlines level of stakeholder involvement Inception report distribution list; six- monthly reports to DFID Internal project 	<ul style="list-style-type: none"> (Activity to output) No restriction on participation by stakeholders Travel within and between countries by project participants is possible

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Narrative summary	Measurable indicators	Means of verification	Assumptions
<p>paper development including literature review [completed]</p> <p>3 Case study site scoping visits [completed]</p> <p>4 Dissemination arrangements established for electronic and other activities [completed]</p> <p>5 Prepare inception report and revised budget [completed]</p> <p>6 Training in HEA/SL for project research team and country collaborators</p>	<p>3. Case studies and national research teams established by end December 2001 [completed]</p> <p>4. Dissemination plan included in inception report [completed]</p> <p>5. Inception report and proposal developed and with DFID by end January 2002 [completed]</p> <p>6. Workshop held in Sri Lanka</p>	<p>documentation and progress reports to DFID</p> <p>4 Website operational and e-distribution undertaken</p> <p>5 Inception report to DFID and feedback received</p> <p>6 Workshop report and draft outline of training manual</p>	
Phase Ib (Main case studies):			
<p>7. Research network and forum set-up (full development ahead of Kyoto 3rd World Water Forum in March 2003)</p> <p>8. Six case studies from five countries on household level water-livelihood linkages including how the poor articulate demand</p> <p>9. Interim report/papers prepared (including for presentation at Johannesburg WSSD)</p> <p>10. Decision support group responsible for drafting tools</p> <p>11. End of Phase I Review workshop</p>	<p>7. Institutional collaboration on network and forum and up and running by September 2002</p> <p>8. Six case-studies suitable for capacity building of target institutions from India, Kenya, Malawi, Sri Lanka and Sudan ready by December 2002</p> <p>9. Interim reports/papers available to DFID and circulated</p> <p>10. Decision-support group established and drafting tools by November 2002</p> <p>11. Workshop report by end of January 2003 with review of draft tools and case studies</p>	<p>7 List of forum participants and agenda for meetings; network member's list</p> <p>8 Case study reports to DFID; feedback received on case study reports</p> <p>9 Distribution list and correspondence with external review group</p> <p>10 Written outputs and drafts included in reports to full team and DFID</p> <p>11 Workshop evaluations by participants</p>	
Phase II: Applied Analysis			
<p>12. Piloting tools in three country-based projects</p> <p>13. Mainstreaming livelihoods-oriented approaches through appropriate training courses</p> <p>14. Dissemination activities</p> <p>15. Final workshop/project completion</p>	<p>12. Pilot projects established by June 2003</p> <p>13. Inputs to training curricula produced by June 2003 (pilots demonstrated at III WWF)</p> <p>14. Web materials posted from November 2001 onwards on dedicated pages; video available by end of project; six case-study articles, briefing paper and a book published; reports circulated by end of project</p> <p>15. Final reports and project documents</p>	<p>12 Internal project documentation and DFID progress report</p> <p>13 Training materials listed in curricula produced by end of project</p> <p>14 Distribution lists of publications and web page hits</p> <p>15 Project report to DFID</p>	

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5 Monitoring, Evaluation and Uptake Strategy

5.1 Description of activity, output and impact indicators

Phase Ia Inception

The Concept Paper presented at Bonn and disseminated widely via the web site, provided the initial theoretical grounding for the project. It continues to be built on—including at the Sri Lanka Methods Workshop. With input from the case studies, it will be used to provide a briefing paper ahead of the Johannesburg WSSD.

The Inception Report builds on the scoping studies in five countries and institutional mapping exercises carried out by the country research teams. At the end of the scoping work specific research sites were identified (see annex). The report's methodological and decision support analysis have been substantially added to following the Sri Lanka methods workshop in May 2002.

Phase Ib Main research

The six case studies produced will be of sufficient detail and policy relevance to provide the basis for capacity building of target institutions. They will be produced in written format, and they will form the basis for the reports and papers to DFID.

The decision-support group will comprise senior research team members and will develop both the methods manual and monitoring and demand-assessment tools useful to key target institutions and stakeholders. Following the Sri Lanka Methods Workshop the drafting of decision support tools has begun. These tools will be developed in concert with project dissemination partners (including the WSP). Case study use in capacity building contexts will involve a combination of government and NGO training programmes. These programmes will use the findings to illustrate key water, sanitation and livelihoods linkages of relevance to understanding demand and/or responding to demand with appropriate service levels and choices of technology for the poor.

Pro-poor decisions made in at least two key intervening agencies will reveal the extent to which policy influencing is taking place. This will include explicit recognition that implementation has to address the realities of demand in the context of livelihood activities undertaken by the poor. Interveners will also engage with project output as a result of participation in research, workshops and other dissemination activities. These events will lead to increased awareness amongst target institutions of issues, approaches and methods, as reflected in their own output and policy directions. The institutional collaboration around the network and forum will feed into broader networking at the WSSD in September 2002.

The end of Phase Ib workshop will be held in India and will provide both the team and an external audience the opportunity to assess the case study output and draft decision-support tools. The workshop will provide the basis for tailoring presentations and output materials for the Kyoto 3rd World Water Forum.

Phase II Applied analysis

Pilot projects will be established in three country-based projects by the end of June 2003. These projects will be chosen on the basis of the country case studies, including the scope for policy influencing and support to interveners in each country. The projects will be undertaken on the basis of existing work carried out by project partners, though some extra costs incurred will be

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covered by the project. If possible—within budget constraints—piloting will be extended to all countries.

Inputs into training curricula produced by June 2003 (and some, particularly in Kenya are likely to be before this), will provide a major link to policy influencing, particularly where the curricula are followed by national governments, NGOs and private sector agencies. The process of influencing through training will be complemented by media influencing through electronic dissemination activities, including an end of project video to be produced in collaboration with the Television Trust for the Environment, as part of the Hands-On BBC World Broadcasts.

Six articles will be published in journals including *Waterlines*, *Water Policy*, *Water Resources Development* and *DFID Water* as well as in a special edition of *Development Policy Review* planned for 2003. The briefing paper for the WSSD will be an output of the ODI Water Policy Programme, with ITDG. A book combining case studies, and tools will be published jointly with research partners. A final report to DFID will be the last output of the project.

5.2 Dissemination and uptake strategy

This dissemination and uptake plan covers international, national level and intra-project levels; these will be largely parallel processes. The dissemination at major international events is accompanied by the development and promotion of the website materials. However, the need to be proactive in reaching beyond the project countries and partners is recognised and will be sought through the development and extension of the research network and forum during 2002 and 2003. This network will actively target key interveners globally as well as—it is hoped—provide a key opportunity for linkage with other research project mentioned in this report. The research network may be hosted on the www.waterandlivelihoods.org website, currently under construction.

Within the project the dissemination of research output from early case study work has been ongoing since the beginning of the project. This has involved key events including the Inception Workshop, the Bonn meeting and, most recently, the presentation to the International Water Management Institute in Colombo. However, greater efforts will be made to ensure quarterly updates on research progress are shared between case studies, helping both to strengthen project cross-learning and to prepare for major dissemination events ahead of time. The project will take a decentralised approach to intra-project learning, encouraging contact between case study countries on research progress. The country networks established by the research teams will also be encouraged to link laterally between countries as well as with the international dissemination networks established from the UK.

Key international dissemination events are the major international policy meetings in Bonn, Johannesburg and Kyoto. One of these has already been successfully addressed by the project as described earlier. The second major influencing event is in late August/early September 2002. The project anticipates holding a side event at Johannesburg, and will encourage participation by other livelihoods-related research programmes. The project is in the process of registering for a side event. In late 2002 SecureWater also intends to convene a meeting of key related research projects at ODI, bringing together wider work under the PRP budget line, other KaR projects and related research being undertaken in the UK.

In Kyoto in March 2003 SecureWater will pilot the decision support tools and distribute widely draft materials in anticipation of feedback from water sector professionals. It is likely that participation at these two major events will also be linked to other research and advocacy work on water, sanitation and PRSPs.

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These global-influencing events are complementary rather than stand alone. Uptake and dissemination will also be carried out through linkage with existing networks—e.g. Freshwater Action Network in the UK, the DFID/IDS Livelihoods Learning Platform (www.livelihoods.org), the ITDG Technology for Sustainable Development Website, the ODI website, the WELL website, GARNET, *Junction Sociale* and other key networks.

Integration of feedback from decision makers during the ‘marketing’ of the project would then be assimilated into the final research phase and assist in establishing a dissemination network in each country consisting of stakeholders and interested groups with whom to share discussion and feedback on emerging research findings.

India

Key collaborators in India who have already expressed an interest in the research include: Water and Sanitation Programme (WSP) South Asia, DFID, Rajiv Gandhi National Drinking Water Mission and UNICEF.

One case study focus will be the official Sector Reform Strategy Project of the Rajiv Gandhi Mission being piloted by the Chittoor Water and Sanitation Committee. This District Administration level committee is constituted under the District Poverty Initiatives Programme, a long-term poverty alleviation programme funded by the WSP. The Sector Reform Strategy Project aims to pilot a Demand-Responsive approach to water management, which involves initiating community involvement and community contribution to drinking water delivery and sanitation interventions. WSP requested that the research be undertaken in Chittoor district, where they are closely monitoring the pilot programme. WSP are primarily interested to understand how a sustainable livelihoods approach can be incorporated into the currently practised Demand-Responsive Approach to water management.

The Rajiv Gandhi Mission were equally interested to learn of the project progress in Chittoor, which is identified as one of the more progressive districts amongst the 58 pilot districts in which this programme is ongoing. The scope of ongoing interaction and future collaboration with key institutional partners provides a rich opportunity to feed into and learn from ongoing DRAs to water management, and therefore provides enormous potential to influence future water policy and practice in India.

The Rajiv Gandhi National Drinking Water Mission proposed that it was of particular interest to compare research findings in Chittoor with one rural district in Orissa, where the pilot project moves at a much slower pace. UNICEF and DfID also identified Western Orissa as a particular area of interest, given the drought-prone conditions in this region. Research in Orissa will be coordinated with UNICEF’s ongoing DFID funded rural water supply and sanitation programme in this region. Save the Children have recently submitted a proposal to DFID, for a project, which aims to research and analyse poverty and livelihood issues related to child education in Orissa. In all probability the SC project would be implemented in the tribal belts of Western Orissa. At the moment it is tentatively proposed that the SecureWater research will be conducted in Ganjam district, where there is most possibility for all the different programmes to converge. UNICEF and SCUK are particularly keen on developing a specific child-focus approach to the SecureWater research in Orissa, and are interested in the potential mutual gains from close collaborative action research. There is a strong possibility that this work in Orissa will lead into the development of a meaningful co-ordination on child rights issues between UNICEF and SCUK. The interests and concerns of the interested collaborators presents an exciting opportunity to meaningfully disseminate research findings.

Research on water and livelihoods issues in Hyderabad will feed into DfID-funded urban environment improvement programmes ongoing in Hyderabad city and other urban towns in

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Andhra Pradesh. DfID are keen that there is an urban focus and are particularly interested in identifying and analysing issues of governance and institutional capacity building in urban environment improvement and management. Useful links have been developed with the DfID funded Andhra Pradesh Urban Basic Services for the Poor project and also with local institutions involved in project planning, implementation and capacity building. This aspect of the research also aims to coordinate the work of several agencies, working in the urban sector and therefore potentially develop bridges between different urban development programmes.

Kenya

In Kenya, groups and individuals interviewed in Nairobi were unanimous in the conviction that there remained weak communications and inter-institutional linkages in the water sector. Institutions involved in water activities in Mukuru Kwa Ruben include Mwangaza a self-help group, the Baptist Church, individual water vendor groups and the Nairobi City Council. Local perceptions of institutional linkages are summarised in the following Venn diagram. The analysis indicates clear limitations in the ways water activities are managed and co-ordinated, with minimal integration between external providers and local institutions and leaders, and only marginal perceived impacts on local residents.

In many ways this limitation is recognised by government agents. Rapid population increases in Nairobi have really made it difficult for the City Council to develop adequate piped water networks and most of the urban residents cater for their own needs. Due to financial constraints, they argue, the government's role is limited to one of facilitation by providing technical expertise when called upon by implementing agencies and the community. Conversely the NGO's are involved in a number of activities aimed at improving access to water and improving sanitary behaviours but are provided limited direction to policy formulation.

Kenya's Poverty Reduction Strategy Paper (PRSP) recognises that one of the main attributes of national urban poverty is inadequate access to water and that there is an urgent need to address the institutional structures and processes for urban poverty eradication. In accordance with the National Water Sector Policy Paper of 1998, revenue raising is recognised as an important component of this process, as is the role of local authorities. Moving away from the public good basis of the 1952 Water Act, in 1974 the government introduced an element of cost sharing in the water sector. The paper specifies that water tariffs should be set to recover the full costs in urban water facilities—capital, operations and maintenance—but that only those local authorities with necessary administrative and technical capacity will be allowed to undertake water activities. However, while the policy context is one of liberalization, this stops at the macro level, and specifically with the private sector monopolies. At the local level, the irony remains that majority of the urban poor depend largely on water vendors, and end up paying more than the set tariffs.

Nevertheless the Government initiative in developing the National Water Masterplan and the ongoing review of the Water Act are important achievements. Due to these reviews and the PRSP process, a number of important issues are emerging. The first and perhaps the most important is the definition of institutional roles, functions, rights and jurisdiction. The second is the emerging linkage of water with livelihood issues and management of water facilities. The main lasting concerns reflect the deep divisions existing between sectoral agencies that have impeded integrated water resource management and led to a lack of recognition for the sewerage and sanitation sub-sectors. Centralised decision making processes have had little impact on these divisions, with policy enforcement largely ineffective.

The custodian of the Water Act is the Ministry of Environment and Natural resources—MENR, although there is a fully fledged ministry of water. The MENR is also responsible for policy formulation and regulation, particularly in regard to the control of water resources and technical

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standards. The Water Resources Authority and Water apportionment Board oversee the policy enforcement. Co-ordination between these two agencies will therefore be crucial to future implementation of integrated water sector learning.

In response to this wide array of policy, institutional and related process challenges surrounding urban livelihoods and access to water in Kenya a stepwise process of dissemination and influence is proposed for 2002, involving:

- Feedback sessions on the preliminary inception phase findings with policy-makers and planners, and community based groups.
- A series of sessions with NETWAS to disseminate information. This will take three forms:-
 - capturing the perspectives from the inception phase in the NETWAS Newsletter and pertinent publications;
 - including topics/modules on 'secure water' in the planned courses for 2002—with a slot for project team members to make presentations;
 - working towards a 2-3-day training session principally devoted to the project.
- ITDG is member of the Nairobi Informal Settlements Coordinating Committee—an institution which includes government departments, the Nairobi City Council, CBOs, NGOs and donor agencies. Within this, there is a working group on water, health and the environment. Over the coming quarter, the team will work with the Shelter Forum and NETWAS to convene a special session for the purposes of presenting key findings, themes and methodology of this project.
- Team and one-to-one submissions will be made with subject specialists and facilitators currently involved in the review of Kenya's water, environment and sanitation policies—an undertaking by the Ministries of Health, Water—with the support of UNICEF and WHO.
- Mainstreaming project findings and approaches within the Community Action Planning and implementation schedule of DFID-EA/ITDG settlement component of the Nairobi Urban Poverty Partnership Project (NUPPP)
- The setting up of a core team of 6-7 urban Secure Water discussion group members drawing from some of the institutions listed above. This will be charged with the responsibility of sharing experiences and integrating lessons learnt.

Malawi

The dissemination and uptake in Malawi will focus on a number of key government agencies, namely the Ministry of Water Development, (and in addition the Ministries of Health and Population, Gender Youth and Community Development, and Local Government and Rural Development). The lead researcher has good links with all such institutions. In addition, WaterAid Malawi will feed research findings into the ongoing Water Sector review process.

Specific targets for research output and the decision support tools in particular will include: District Coordination Teams (DCTs) for water and sanitation, recently formed to plan and implement water and sanitation activities at the district level. Also Area Executive Committees that are parallel technical committees composed of technicians and extension workers from the various ministries, NGOs and private sector who advise Area Development Committees. These will be a key target for training related activities.

Research findings will focus on the following donor agencies active in the Water Sector in Malawi: CIDA, DANIDA, DFID, JICA, KFW, UNICEF and World Bank. In particular the World Bank-aided government projects: namely the National Water Development Project (NWDP) and the Social Action Fund (MaSAF).

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NGOs active in the provision of safe water in Salima District: SCF UK, ActionAid, Madzi and World Vision will also be brought into the research network and forum in addition to private sector agencies, major drilling contractors and Community Support Groups (operation and maintenance support teams trained by NWDP).

Sri Lanka:

Despite high rainfall in Sri Lanka, access to available water for the poor is in competition with a number of end-users. Some 80% of national water supply is consumed by the agricultural sector, primarily for paddy cultivation, under the country's larger irrigation schemes supply to which the main infrastructure of water supply is primarily geared. This leaves significant shortfalls in the availability of water for the industrial, environmental and energy sectors, and restricted access for both urban and rural domestic end-users.

Despite this intense competition, there is as yet no established policy mechanism by which to handle water supply decision-making, except from within the individual sectors. This situation is leading to intense economic and political pressures where new sectoral entrants are demanding a greater share of the water supply, and an increasingly vocal population seeks to influence domestic policy processes to improve supply while keeping the price of water down.

The institutional map from the Hambantota study area (see below) provides a useful snap-shot of the sectorally-driven systems of accountability and decision making. These clearly indicate the limited room for consensus building and integrated planning under established institutional processes, except at the national level.

At the national level, the Government of Sri Lanka has drafted a National Water Policy. Under this policy the establishment of a National Water Resources Authority will bring control of future water allocations within a single, guiding, policy and institutional framework. Water delivery mechanisms will be developed by the NWRA and supported by a Water Resources Council, a Water Resources Secretariat and a Water Tribunal responsible for final arbitration in case of disputes. Among the policies being considered for a draft national Water Act, are tools that are targeting the nature and level of demand. These include,

- Economic incentives to change from high water consuming paddy cultivation to low water-consuming subsidiary food and non-food crops
- Awareness-raising programmes outlining the economic value of water, the adverse effects of water extraction and opportunities for water conservation
- Water entitlement allocations for bulk end-users, from which small and domestic water user will be exempt
- Water conservation agreements in water-sensitive areas
- The promotion of water efficient technologies supported by a scheme of linked financial incentives

These emerging policy and institutional processes provide a number of opportunities for broader mainstreaming of the project's activities and outputs. The research work itself has been located within the Water Resources Secretariat and involves close links to the Agrarian Research and Training Institute under the Ministry of Lands and Forestry. However it will be fundamental to future uptake that decision support tools generated by the project are located within the National Water Resources Authority and all its subsidiaries. Furthermore effective mediation of national-level decision making will involve disseminating these decision support tools to subsidiary institutions at the sub-national (regional and district) levels.

To this end, close links have been established between the Secretariat and the Institute of Participatory Interaction in Development. IPID are a recognised training institute with

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experience of national policy training, also currently involved with ITDG in a decentralised participatory planning programme in central Sri Lanka. The involvement of IPID in mainstreaming will therefore draw together existing experience of national and decentralised lesson learning surrounding appropriate dissemination processes and pit-falls. However it is recognised that other actors in Sri Lanka that the project will need to target include the Community Water Supply and Sanitation Project of the World Bank. It is planned that CWSSP representatives will be brought into the project early during Phase 1b, and specifically during the planned Methods Workshop to be held in Sri Lanka in late April 2002.

Sudan

Communities in Darfur frequently suffer from extreme water shortage. Whilst the policy environment surrounding access to water is weak (effectively the government has withdrawn from this activity), the developmental capacity and approach of communities is exceptionally strong, to the extent that community financing and management of water points is quite common. Understanding the approaches taken by communities, the impacts on different livelihoods activities and the way water has been commoditised are essential aspects of the research. Often the sale of water by communities helps to cross-subsidise other developmental activities such as education and health centre development.

SC UK has been involved in water projects in Darfur for more than 10 years. The established institutional arrangements and relationships allows this research to be fed in directly to Government departments at Federal, State and Provincial levels. Particular importance is attached to the Ministry of Agriculture, and the Planning and Development Unit of the Ministry of Finance. Further into Phase 1b, it is anticipated that the research and decision support tools will help feed into and influence the development of a Water Corporation technical and managerial training institute.

The Rural Water Corporation (RWC), which is responsible for supplying technical support and spare parts to local management committees, though under performs considerably, is also an important focus of the research, particularly at the sub-state level. Additional institutional actors that can play an important role in the research network are NGOs and UN agencies working in Darfur including Oxfam, SC UK, GOAL, WFP and UNICEF.

6 Annexes

6.1 Email dissemination list (for outputs during and post WSSD)—to be update throughout 2002

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6.2 Financial note

Supplied separately.

6.3 Summary Inception Workshop Report

Inception Workshop held at the Landmark Hotel, Nairobi 10th – 12th September 2001

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SecureWater: Inception Report

The UK Department for International Development (DFID) is funding the development of a major research programme on the theme of Secure Water: Building Sustainable Livelihoods for the Poor into Demand Responsive Approaches. The following is a short summary report from the Inception Workshop held in Nairobi, Kenya.

Aims of the Project:

Recent conceptual shift in the water sector towards achieving sustainable water supplies through promoting demand-led, as opposed to supply-led, development based upon the principle of water as an economic good.

Do demand-responsive approaches (DRA), as a shift in the water sector, address poverty and how can they be made more effectively pro-poor?

How can a Sustainable Livelihoods (SL) approach help to highlight the complex role of water within wider livelihood strategies and could therefore add value to DRA by enhancing demand responsiveness, thereby improving supply sustainability.

Basic project purpose is to enhance understanding of poverty-water-livelihoods issues and build capacity to address them *through* demand-responsive approaches by comparing different contexts and draw out useful common areas/lessons for effective intervention.

Provide strong evidence for policy change i.e. good case studies, policy narratives, stories of reversal from old to new which change assumptions. Focusing on local and national policy and links with decision-makers through action-research, training and development of practical decision support tools.

Key target institutions include external support agencies concerned with poverty reduction and water supply development, national organisations and government ministries and regionally and nationally-based research and training institutions.

The project also aims to inform international level debates. Key markers in influencing global discourse include: Bonn (Dublin +10) December 2001, Johannesburg (Rio +10) September 2002 and Kyoto (3rd World Water Forum) March 2003.

Methodological Issues:

The project aims to combine the best aspects of different methodological approaches in order to inform and assist in the development of enhanced demand-responsive approaches. Discussion focused on the relative strengths and weaknesses of each, in order to identify both areas of overlap and complementarity and gaps in understanding.

Demand Responsive Approaches:

Detailed global guidelines have now been developed for implementation, however the level of commitment and extent of coverage across countries, regions varies considerably.

There are a number of important issues related to scaling up:

- *financing* (principles and achieving sustainability), establishing fiscal consistency and appropriate levels of cost recovery, also important questions over financing capacity at different levels.

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- *institutional* (appropriate models and issues of capacity) identification of an appropriate institutional model to ensure high quality and inclusive services, in particular balancing decentralisation and user control with lack of capacity at lower levels.
- *political will* (required to champion, adopt and implement DRA approaches countrywide) can be a significant constraint to country-wide scaling up, there are significant perceived political costs of enhanced user financing to be overcome.

Importance of engaging with PRSP processes and building WSS components into poverty diagnostics. M&E of impact/outputs/outcomes remains problematic. PRSP provides an opportunity to adopt SWAPs and to leverage funds for WSS under MTEFs.

Key concern is the need to ensure demand is better interpreted by sector practitioners, incorporating and integrating different types of demand into operational guidelines. A further important emerging issue is that of policy acceptance versus lack of capacity for implementation, also the 'political costs' of implementing these approaches.

Sustainable Livelihoods Approaches:

Key strength of SL analysis is that it provides a useful, logically consistent way of thinking through the complex issues influencing the livelihoods of the poor and suggests multiple, cross-sectoral entry points for intervention (e.g. access to resources, transfer of technology, institution building). A common framework and language for analysts and policy makers from different sectors, emphasising cross-sectoral collaboration and providing space for different disciplines to work together towards a common goal.

The SL approach stresses the need for holistic analysis as the basis of focused intervention, taking a wider view of poverty than conventional income-based approaches.

SL emphasises the range and depth of barriers to access to water supplies and highlights the need to understand and strengthen micro-macro linkages.

It does not necessarily aim to address all aspects of livelihoods of the poor. The intention rather is to employ a holistic perspective in the analysis of livelihoods, in order to identify a manageable number of key issues/entry points where intervention could be strategically important for effective poverty reduction either at a local level or policy level.

A particular value of the SLA lies in the inclusive, non-threatening process of designing water interventions that it encourages, in addition to whatever improved project/programme outcomes it achieves.

Policy Analysis for SL:

Process emphasis. Effective policy analysis requires a clear understanding of policy objectives i.e. what sort of water supply to sustain and for whom and over what timescale? Objectives need to be linked to realistic policy processes. This involves assessment of the feasibility of required reforms and evaluating the political will to implement those reforms.

Wider political feasibility. 'The mark of effective research advice and policy-making will be the capacity of those involved to know the difference between what can be done and what should be done. The when is determined by changing political culture and expressed in new and effective institutions'.

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Technical issues should not be forgotten. DRA emphasises articulated demand but governments often prioritise according to political pressure. Providing technical choice is very difficult in reality due to the back up required, and administrative and logistical burden. There are therefore certain limits to 'options' for service delivery. Importance of comprehensive stakeholder analysis.

Demand Assessment and Willingness to Pay Surveys:

'Unless there is a demand for a product no amount of skilful marketing and participatory processes will motivate people to use and look after new facilities' (White 1997).

Willingness to pay is a term widely used for the various demand assessment techniques applied in WSS, essentially it is 'the maximum amount an individual is willing to pay for a good or a service'. Combines *revealed preference* and *stated preference* techniques.

Contingent valuation is a direct demand-led approach to valuing the benefits of an improved water supply system and yields information how much a household can afford and is willing to pay for WSS.

While CVM has many advantages it is also prone to bias. The technique does not test consumers' *effective* demand i.e. will they really pay the tariffs they said they would in the survey. No reason why multiple techniques can't be employed (participatory and CVM, hh survey etc) using a multi-skilled team. Need to understand why men express low WTP and why some of the poorest groups are not WTP even for the cheapest most basic latrines?

SL and HEA may be particularly valuable in framing interpretation of data emerging from demand assessments. While techniques such as CVM provide an operational tool, SL can inform strategic policy.

Household Economy Approaches:

Origins of the approach are in entitlement theory. HEA describes the strategies people use to access food and income. It explores how typical 'better off', 'middle', 'poor' and 'very poor' households live and interact. It is particularly useful to identify vulnerability of different groups and therefore predict likely responses to change.

Recent assessments in Bangladesh indicate that water is a key item of household expenditure. Systematic and rigorous assessment of competing demands shows how changes in water supply (no longer free, new charges etc) affect willingness or capacity to pay for water. The relationship between what people could do and what they actually do leads on to the intra-hh model.

SL and HEA provide tools for analysing the economic potential that better access to water could release. Indicate local constraints e.g. labour, customs, finance and show how water, in combination with other assets, contributes to production. Also reveals the associated opportunity costs and benefits and the differential impacts of policy reform and changes in water supply on different groups.

In Summary:

Demand assessment is useful but generally doesn't go far enough. CVM for example gives a picture of demand but not the reasons why.

Household Economy Approaches add value by providing information on the household and sub-household dynamics. HEA provides very valuable detail enabling a more coherent understanding of the social and economic complexities of demand at the household level.

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Discussions suggest HEA and SL are highly complimentary. The capacity of SL to provide a common language for analysts and policy makers from different sectors is of significant practical value.

Expressions of willingness to pay are rather crude, often unrealistic and may be contingent on external factors. There is therefore scope for redefining demand to make it more sensitive to poor people's reality.

A recurring theme was the issue of water rights. It is noted however that rights-based approaches are highly problematic, not least in terms of financing. It is arguable that SL offers a way to understand how to convert theoretical rights into actual opportunities.

Key Case Study Issues & Research Themes:

Key issues emerging:

- governments are pushing the sustainability issue hard at the macro level but there are significant impact/capacity issues at the local level
- what is the precise nature of demand and how far is this reflected in demand assessment?
- how far 'sustainability' is really a priority from the perspective of the poor?
- what assumptions does DRA make about private sector and NGO capacity
- what is the degree of engagement of the poor with institutions and processes of project/programme/strategy design, implementation and evaluation?

Key research questions?

- How are livelihood outcomes affected by changes in the nature of water supply at the hh level?
- How have interventions worked for/ against livelihood strategies of poor hhs and why? (existing situation reflects a history of policy interventions)
- How can interventions be improved so that they better fit the livelihood strategies of the poor? (not just how to improve understanding of demand but understanding how the poor use that water)

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6.4 Website homepage

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6.5 Scoping Study Syntheses

Following the Inception workshop initial scoping studies were conducted in proposed study areas in each of the 5 countries. The main purpose of the scoping studies was to flag up key issues for further exploration in the main research phase. A checklist was devised to guide scoping study activities. Research partners were asked to map the various institutions involved in water management in order to develop an 'organogram' of responsibilities/ jurisdiction (authority and financing mandates) and policies/objectives. In particular noting the interrelations between institutions (links/breaks) and mode and effectiveness of policy dissemination. The studies also aimed to examine stories at community level, which bring out key characteristics of poverty-water-livelihood linkages. The major issues emerging were then juxtaposed against the policy and institutional context. The key research questions/issues, for in-depth exploration in the main research phase, are summarised below.

North Darfur (Sudan)

The Sudan research will focus on the impact of recent and ongoing changes in the water sector, at federal and state levels, on the livelihoods of pastoral communities in Darfur. In the past both construction and maintenance of water facilities was carried out exclusively by the government but since the early 1990s the government role has been diminishing and the community role, in terms of management and financing, has grown progressively. The withdrawal of government funding and resources has effectively left a vacuum which the community is expected to fill. The scoping study suggests that the community in this area is in fact highly organised and willing to participate in water management and contribute to construction and maintenance costs, either through direct payment or labour. The Rural Water Corporation is supposed to provide technical support and supply fuel and spare parts to local water management committees but currently lacks the financial capacity to fulfil this role. The respective roles and responsibilities of community and government bodies and relations between the two following changes in policy is a key area of concern.

The site selected is the pastoral area of Kutum, northern area of north Darfur. Four types of water supply systems are found in the area, resulting in a range of different relationships between water and livelihoods. Interesting issues surround household consumption patterns and the relationship between household consumption and livestock production. Important dimensions include time-distance to source, seasonal variation in availability, water quality especially in Hafirs, migration patterns in search of water for grazing and certain special uses of water e.g. for the preparation of famine foods. In order to explore the nature of poverty-water-livelihoods linkages, study villages have been identified both near and far from water points and also where there is an element of choice between sources and supply systems. Of particular interest are changes in water use preference following improved or increased supplies and related changes in household economy and livelihood activities. Key issues surround community level management capacity and rules of access and resource allocation/exclusion between and within groups (pastoral and sedentary). In particular employment and income generating opportunities from water revenues, tariff systems and financing of operation and maintenance costs. The ways in which water revenues are reinvested represents a particularly interesting research focus.

Salima District (Malawi)

Research in Malawi will focus on the implications of adoption of demand-responsive approaches in the water sector for selected villages in Salima district. Poverty alleviation is central to government policy in Malawi, to this end it has recently adopted a multisectoral, demand-responsive approach to the implementation of rural water supplies. Malawi is engaged in a wider process of decentralisation but lack of capacity at the district level to perform new roles is a significant constraint. DRA concepts are now established in water policy guidelines but the scoping study suggests that they are generally poorly understood and only partially applied at present. Rural areas

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of Malawi have very little access to safe water, the main source is groundwater and the water sector is very much geared to the provision of boreholes. Historically provision has been essentially supply driven, communities are provided with little technological choice and participation in decision-making is limited to functional inputs. The study found that demand assessment techniques remain crude and interventions are often subject to technological and political bias. The new roles and responsibilities of decentralised structures are unclear and communities studied were unsure of who to approach about their water problems. Furthermore the capacity of newly decentralised structures to respond to community demands is often limited. Improving understanding of DRA concepts and building capacity at District and National levels to implement them is a key concern.

The proposed area of research has comparatively low water coverage statistics and a history of water interventions from many international development agencies. It provides a useful comparison of the value of water for productive purposes in two different areas in relation to a range of choices in terms of service provision. These communities have historically been dependent on the state for their water supply under the previous policy of 'free' water for rural areas. Many indicated willingness to contribute to the cost of a new water point. Benefits narrated from the field included: safe, clean, tasty water; ability to prepare and cook different foods e.g. beans; older people able to collect their own water; reduced time/effort for collection; reduced competition/conflict at water points; more time for agriculture and other income generating activities e.g. bricks; livestock for consumption and sale. Communities however were unused to being consulted or participating in management of water sources. Furthermore they were unaware of the relative costs of technologies other than boreholes. Sensitising communities to their options and associated management and financing responsibilities is a key concern if water supply developments are to be sustainable.

Hambantota District (Sri Lanka)

In Sri Lanka, research will focus on Hambantota. Sri Lanka is characterised by wide rainfall variation 500-2500mm with high seasonal and spatial variation, high run-off and little groundwater reserve. 96% of the national water requirement is for agriculture and responsibility for rural water supply is divided between the Rural Water Supply and Sanitation Division and Project Management Committees of the irrigation sector. Each has a hierarchical structure of committees from community level to national level. In addition there are a number of local and foreign NGOs involved in supplying rural households, often bypassing the state institutional structure. The heavy involvement of donor-funded projects for rural water supply has introduced a number of poorly coordinated water supply options, many of these have been subsequently abandoned. Water has traditionally been viewed as a 'free' resource but with the collapse of traditional tank management systems, disconnect between traditional institutions and state institutions and NGO intervention in areas traditionally the responsibility of state roles and responsibilities have been blurred.

In the (rainfed) study area the rural poor suffer due to lack of water for both domestic and irrigation during the dry period. Availability and accessibility of water has a strong correlation with household income. Poorer rainfed villages consume around 15lcpd compared to 45lcpd in richer irrigated areas. Availability of transport to fetch water is a key factor, richer households with transport were found to travel up to 7km in search of potable water. An interesting dimension of water-livelihood linkages is the multiple 'types' of water distinguished. The scoping study suggests some households use up to eleven different sources of water in the dry season, at considerable opportunity cost. Water is a key constraint on food security in the study area. Traditional reservoirs designed to store water for irrigation during the dry season have mostly fallen into disrepair limiting cultivation to a single season. In rainfed areas such as Hambantota rainwater harvesting is key. The management and financing arrangements surrounding rehabilitation and maintenance of RWH schemes is a key research focus.

Nairobi (Kenya)

The Kenyan case study will focus on an urban water and sanitation project in Mukuru Kwa Reuben in Nairobi and Magadi an area on the outskirts of Nairobi subject to seasonal pastoral migration. The policy context is one of liberalisation, however while water sector management and supply at the macro level has been handed to large private sector monopolies, small scale private sector operators have been criminalised. Kenya's PRSP recognises the importance of water supply and sanitation. Consultations at district level have highlighted the fact that access to water for human consumption, agricultural and livestock use is a major problem in rural areas. A number of institutions such as the Ministry of Environment and Natural Resources, Ministry of Water, Ministry of Agriculture and related G.O.K parastatals (e.g. the National Irrigation Board and the National Water Conservation and Pipeline Co-operation) are involved in water supply. The scoping study notes that there is an urgent need to address the institutional set up in order to put in place effective institutional structures and processes for rural and urban poverty eradication.

PPAs conducted for the PRSP indicate a strong correlation between availability of water and poverty. Water is a critical requirement for small scale income-generating activities such as keeping small livestock, or vegetable gardens. In the urban study area of Mukuru Kwa Reuben, the population depends heavily on water vendors and communal water and sanitation facilities. There is currently little regulation and water quality, availability and price varies substantially. High incidence of water and sanitation diseases is attributed to poor water and sanitation conditions. Important foci or leverage points for the study include: connecting up the water-sanitation chain i.e. linking suppliers to entrepreneurs/operators, an interesting question is whether the urban poor can generate income from engaging in WSS activities. In Magadi on the outskirts of Nairobi the population is facing major water problems. Water collection, undertaken by women and children, takes between 4 and 8 hours (sometimes a whole day). This impacts negatively on women's productivity and livelihood opportunities and results in low consumption of water of often inferior quality with health and nutritional consequences. Water availability is also a key constraint for entrepreneurs seeking to diversify their livelihood activities. Cross-cutting issues emerging from this study include linking water and sanitation to income generating activities. Common issues surround the management and financing of water development, community and private sector roles, cost recovery and regulation of standards. Policy support at district and national levels is crucial to encourage and facilitate more sustainable water supply developments, for example land tenure insecurity is a key constraint to community investment in urban areas.

Andra Pradesh (India)

The Indian case study research will be carried out in Andhra Pradesh, two mandals have been selected in Chittoor district, one in arid drought-prone western Chittoor, which is also a tribal area and another in eastern Chittoor, which is a high rainfall area. The scoping study focused particularly on the policy context and issues of governance and institutional responsibility. In India there are five different ministries responsible for water at the central government level and this fragmentation of responsibility represents a huge challenge. It examined mechanisms in place for discussion of demands and decision-making in water management highlighting major issues of social exclusion and lack of participation by the poor in water decisions. Major disparities in access and water quality and quantity were found, particularly between land-owners and landless, between big farmers and small farmers and between members of different castes.

Despite progressive policy reforms the study shows that these often do not permeate down to lower levels. There remains no effective means to control how much groundwater a particular landowner may draw, over-extraction of groundwater for irrigation significantly impacts the quality and quantity of groundwater, which is also the largest source of drinking water supplies. An interesting dimension of the study is the differential impact of changing land use resulting from water supply development, and increased abstraction of groundwater reserves on the seasonal livelihood

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activities/opportunities of different members of the communities studied. Some of these problems of unsustainable use and unequal distribution of water are now being addressed through targeted pro-poor sector reform programmes under the guidelines of the Rajiv Gandhi Mission. The study suggests however that the principle of equal cash contribution from all user households is unrealistic given absolute constraints on the capacity of the poorest to pay.

In addition fieldwork will be carried out in urban slums on the periphery of Hyderabad. Initial scoping studies found severe water supply problems. Water collection represents a huge opportunity cost for women in this area. An interesting research focus is the dynamics of emerging water management committees which organise payment for water supplies by tanker or from private sources. In such urban areas institutional responsibilities in the planning, implementation, management and maintenance of water delivery are fragmented and agency roles duplicated. In the absence of legitimate political and social authority, most poor households are unable to demand and acquire access to adequate, reliable and safe water.

Country Scoping Studies: Key issues summary table

Country	PIPs Context	Emerging Water-livelihood stories	Local PIPs	Selected issues
Sudan	<ul style="list-style-type: none"> State/Provincial system Policy 'vacuum' Weak implementation 	<ul style="list-style-type: none"> 4 types of supply system Dimensions of source preference Seasonal variation in water use Pastoral context/interface Employment and income generation opportunities from water revenues, tariff systems 	<ul style="list-style-type: none"> Community based management capacity, rules of access, resource allocation/exclusion Community financing of O&M Participation in resource management 	<ul style="list-style-type: none"> Pastoral context/interface in relation to productive uses Employment and income generation opportunities from water revenues Environmental impact, multiplier effects and transfer of benefits
Malawi	<ul style="list-style-type: none"> Political interference Policy evaporation, strong policy statements versus weak implementation Lack of sectoral co-ordination 	<ul style="list-style-type: none"> Inappropriate technology choice Lack of involvement of communities Lack of government support for community initiatives 	<ul style="list-style-type: none"> Decentralisation but limited capacity and resources Limited community participation Limited financing options in absence of govt 	<ul style="list-style-type: none"> Political interference Decentralisation but limited capacity and resources Policy evaporation, policy statements not realised Role of NGOs in the absence of government
Sri Lanka	<ul style="list-style-type: none"> Politicised water/ policy environment Progressive policy but political will lacking 	<ul style="list-style-type: none"> Collapse of traditional tank management systems Multiple sources of drinking water under different systems Demand relates to expectation 	<ul style="list-style-type: none"> Disconnect between traditional institutions and state institutions Water traditionally a 'free' resource. Lack of WTP for water 	<ul style="list-style-type: none"> Politicised water/policy environment NGO intervention in areas traditionally responsibility of state Multiple sources of drinking water and multiple 'types of water' Customary systems of ownership of water resources
Kenya	<ul style="list-style-type: none"> Liberalisation Private sector monopolies WSS a PRSP priority for urban areas 	<ul style="list-style-type: none"> Sanitation and income generation opportunities for the poor. Informal water sector entrepreneurs. Social exclusion 	<ul style="list-style-type: none"> Land tenure insecurity Local government reform programme focusing on local authority service delivery Participation of the poor in urban planning 	<ul style="list-style-type: none"> Sanitation and income generation opportunities for the poor Water vending issues (informal sector licensing, tariffs, marketing) Water and livestock, pastoral vulnerability
India	<ul style="list-style-type: none"> Institutional complexity/fragmentation malcoordination 	<ul style="list-style-type: none"> Major issues of social exclusion, barriers to internal community cross subsidisation Use and abuse of targeted subsidies Absolute limits to capacity to pay 	<ul style="list-style-type: none"> Panchayat raj system and village water committees Watershed approaches Lack of participation of the poor in WSS decision making. 	<ul style="list-style-type: none"> Institutional complexity/fragmentation and malcoordination of effort Lack of policy permeation to lower levels How to address issues of 'social exclusion'

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