Government and Civil Society Partnerships

HTN International Workshop, India
6-10 March 2000

Proceedings

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Dedication

These proceedings are dedicated to the memory of the late Mr A Madhava Reddy, who was the Chief Guest at the Inaugural Session of the Hyderabad Workshop. Mr Reddy, the Hon. Minister for Panchayati Raj and Rural Development, Government of Andhra Pradesh, delivered the Workshop's Inaugural Address.

Mr Reddy was tragically murdered in a landmine explosion on 07 March 2000, only a day after he opened the Workshop. Delegates paid their respect to Mr Reddy and honoured his contribution to rural development in the state of Andhara Pradesh by observing a period of two minutes' silence at the beginning of proceedings on 09 March 2000.

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1 Introduction

This document reports the proceedings of the Network for Cost-effective Technologies for Water Supply and Sanitation (HTN) Workshop held in Hyderabad, India, 06-10 March 2000. The Workshop was organised by the Swiss Centre for Development Co-operation in Technology and Management (SKAT), the HTN Secretariat and UNICEF, in conjunction with the Government of India (GOI) Rajiv Gandhi National Drinking Water Mission (RGNDWM), the Andhara Pradesh Ministry for Panchatayti Raj and Rural Development and the Swiss Agency for Development and Co-operation (SDC). ***Sections 1.1 & 1.2*** provide information about the Workshop's theme and objectives respectively. ***Section 1.3*** outlines the Workshop's agenda and ***Section 1.4*** introduces its participants.

1.1 Workshop Theme

Governments around the world have increasingly recognised the need for participatory approaches to the delivery of water supply and sanitation services. The theme of the Workshop, 'Government and Civil Society Partnerships', reflects the need for involvement at all levels of society.

Since the previous HTN Workshop held in Mangochi, Malawi in March 1997, there has been considerable progress in the adoption of new policies within the global water supply and sanitation sector. These include guidelines for, and introduction of demand-responsive approaches (DRA) during the planning, execution and maintenance of water supply and sanitation systems.

An emerging body of experience exists, but there is still much to learn about the practical implementation of community-based projects. Mindful of this, the Hyderabad Workshop sought to address a number of broad issues under the common theme of 'working together'.

1.2 Workshop Objectives

The Workshop was designed to collect data and facts on:

- experience with community-based DRA projects, standardisation policies, private sector involvement, and decentralisation of implementation and maintenance
- environmental issues of water resource management and water quality.

During the Workshop, delegates assessed the successes and failures of rural water supply and sanitation activities and pointed out possible reasons that influenced the results. They identified broad strategies and indicated where local/regional adaptations are required.

The main output of the Hyderabad Workshop has been the consolidation of basic principles and guidelines for technology choice, standardisation and maintenance structures under the changed institutional arrangements. The results of the Workshop can be used to point out:

- aspects to be considered in the decision making processes
- how a comprehensive but manageable mix of technologies can be offered
- the criteria for partnership between government and civil society, including the definition of the interfaces between the private and the public sector.

The recommendations include considerations on environmental issues, such as sustainability of water resources and degradation of water quality.

1.3 Workshop Agenda

The Workshop agenda included a wide range of activities:

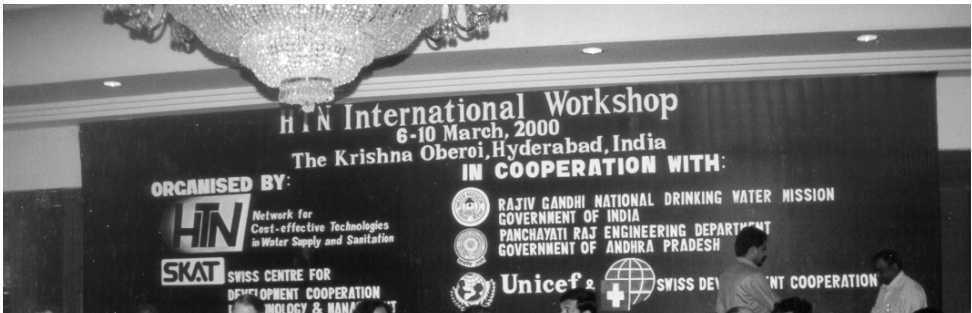
- introductory and keynote speeches by invited dignitaries
- presentations by international water resource and water supply specialists
- working group discussions in large and small groups
- plenary sessions to debate and finalise recommendations

- visits to handpump test sites, manufacturing premises and -research and development (R&D) facilities in the vicinity of Hyderabad.

A copy of the agenda is enclosed at ***Appendix 1***.

1.4 Workshop Participants

The Hyderabad Workshop drew together around 200 rural water supply and sanitation specialists from 38 countries. Representatives from 26 national water sector agencies participated in the Workshop. UNICEF staff from 20 countries also attended. Bilateral donor agencies and the World Bank, Water and Sanitation Program (WSP) were represented, as were some 18 private sector manufacturing organisations. Non-government organisations (NGOs), external support agencies (ESAs) and consulting firms also sent their staff to the Workshop. A full list of Workshop delegates is presented in ***Appendix 2***.



2 Workshop Context

Despite considerable progress within the water and sanitation sector in recent years, the size of the mission remains huge. Indeed, the task of providing the world's population with access to safe drinking water and sanitation is getting ever more difficult. Rapid population growth and conflicting demands for water are placing increased pressure on a finite resource. It is clear that unless additional financial and non-financial resources are mobilised, the objective of universal coverage is unlikely to be achieved in the foreseeable future. Taking these points into consideration, ***Section 2.1*** provides an overview of the issues faced by the global water and sanitation sector. ***Section 2.2*** describes the need for governments and civil society to work together to address these issues.

2.1 An Impending Crisis

At the beginning of the 21st century, over one billion people still lack access to safe drinking water. Nearly three billion have no safe sanitation facilities. UNICEF estimates that water-related diseases contribute to nearly 4 million child deaths each year. Although considerable progress has been made over recent decades, the end is not yet in sight. Some would say that the battle has only just begun.

Water is a limited resource – indeed, fresh water is one of the world's most precious assets. Over the centuries, mankind has been involved in many struggles to secure access to and control over fresh water supplies. However, water is often treated as a limitless commodity that can be squandered. In many countries, over abstraction has become the norm and pollution of water catchments has become endemic. Governments appear to be doing very little to halt an impending crisis that is largely, if not wholly man-made.

The host country provides an instructive case in point. With nearly one billion people, India is home to around twenty percent of the world's population. For many years, the national and state governments have placed considerable emphasis on providing the people with access to safe drinking water and sanitation services. Whilst coverage is not yet universal, achievements to date are very

impressive. However, the considerable investments are being put at risk because of inadequate water management and environmental protection. It is estimated that nearly 100 million people in India are affected by water quality problems, due to pollution, the prevalence of fluoride, arsenic or iron, and the ingress of salt water.

The situation is similar in other countries where the twin threats of deteriorating water quality and falling groundwater levels are having a disastrous effect on the livelihoods of the poorest in society. Rural dwellers and the urban poor can do little to alleviate their predicament. Achieving the goal of universal access to safe drinking water and adequate sanitation facilities is a huge undertaking in its own right; it seems scandalous that so little is being done to reverse the threats to water quality and availability, on both a local and a global scale.

2.2 The Right to Participate

In many parts of the world, water of any kind becomes scarce at various times of the year. The situation is exacerbated when traditional water sources become polluted, by industrial and agricultural effluents, and when large quantities of water are abstracted with scant thought about recharge. Many countries are thought to be doing too little, too late to protect themselves and their people from major water resource and supply problems in the near future. The poor, in particular, are likely to be most at risk.

The right of people to have access to drinking water in quantities and of a quality equal to their basic needs cannot be disputed. Water, sanitation and hygiene are prerequisites for and form a major component of poverty alleviation. However, governments alone are not capable of ensuring universal coverage. There is need to harness and incorporate user's energy, enthusiasm, knowledge and skills in the planning, implementation and management of projects. Their right to participate in all aspects of the decision-making processes must be recognised, and if water, sanitation and hygiene are to be achieved for all, roles and responsibilities must change. People must become the catalysts for change and governments must support them. The need for dialogue becomes an imperative.

Questions that need to be answered include the following. How should the handpumps be installed? Who should own them? Who should pay for their installation and maintenance? What technologies should be chosen? What decision-making processes should be employed? What should be the role of different actors? There is much to learn about management of water and sanitation services in a participatory environment. However, it is only through genuine partnerships that the poorest on the planet are likely to gain access to safe water and sanitation within our lifetime.

3 Workshop Presentations

The Workshop presentations are grouped under six main headings:

- presentations placing the issues of the sector into perspective (***Section 3.1***)
- presentations on the theme of water resource management (***Section 3.2***)
- presentations on the theme of working with communities (***Section 3.3***)
- presentations on the theme of technology development (***Section 3.4***)
- presentations of a topical nature made by Workshop delegates (***Section 3.5***)
- presentations on the achievements of, constraints on and future plans of the HTN (***Section 3.6***).

A list of papers submitted during the Workshop is given in ***Appendix 3***.

3.1 Placing the Issues into Perspective

The Chair of the Inaugural Session, Mr S K Tripathi, Secretary, Department of Drinking Water Supply, Ministry of Rural Development, Government of India, welcomed participants to Hyderabad. He wished them a pleasant stay in the historic city.

3.1.1 Welcome and Opening Remarks

Mr S S Naidu, Chief Engineer (RWS), and Chairman of the Local Organising Committee, India, gave a short welcome address. He thanked the delegates for attending the Hyderabad Workshop and gave a brief introduction to the issue of participation between government and civil society, placing this issue in the Indian context.

Mr S K Tripathi gave some opening remarks, during which he mentioned that groundwater accounts for more than 85% of drinking water supplies and that there were over 3 million handpumps installed in India. Since the 1970s there had been rapid growth, following breakthroughs in hard rock drilling technologies and the development of the India Mk II public domain handpump. He took pride and

expressed satisfaction in the role played by the India Mk II and, subsequently the Mk III handpumps, not just in India but also on the wider global stage.

Mr Tripathi emphasised the need for securing the sustainability of both system and source – a theme that was to re-emerge throughout the Hyderabad Workshop – and noted the need for development of suitable strategies for operation and maintenance (O&M). He discussed the results of a national workshop held in 1996, during which sectoral constraints were identified, and from which pragmatic and actionable O&M solutions have been developed. Mr Tripathi admitted that a 'top down' approach, ignoring the community, has led to the failure of large numbers of systems due to poor O&M. He stressed the need to secure the return on existing investment through a transformation to demand-based approaches.

The speaker emphasised that communities in India were willing to pay full O&M costs for a handpump (approximately Rs 5-8 per head per year), provided the services were satisfactory and acceptable. Correspondingly, the GOI has begun to institute sectoral reforms, shifting from 'Government as provider', to 'Government as facilitator'. Following a series of regional workshops in different parts of the country in 1998/99, over 58 districts have been identified for taking up pilot sectoral reform projects, with the thrust on institutionalising community-based O&M.

Mr Tripathi also discussed two hazards facing the sector in India – depletion of water level and pollution of groundwater. He noted the need for effective actions to overcome these threats to the system. Mr Tripathi concluded his remarks by urging Workshop delegates to address the issue of handpump design life; currently estimated at between 7-10 years. He called for action research to refine current designs, and so develop handpumps that are more sustainable, user friendly, reliable and adaptable. Expressing his satisfaction that the Workshop was covering a wide range of relevant issues, Mr Tripathi wished the delegates every success in their deliberations.

3.1.2 Keynote Address

Mr Rupert Talbot, Chairman of the HTN Steering Committee and Head of WES, UNICEF, India, began his keynote address by reviewing the global goals and emphasising that universal coverage remains a distant dream. According to Mr Talbot, roughly five times the current investment of US$ 1500 million annually needs to be spent to achieve success. He noted that poor maintenance of community water supply facilities has emerged as a major problem in practically all countries. Depleting groundwater levels and deteriorating water quality compounded this situation.

The speaker noted that developing countries are in the process of defining new implementation approaches and that the HTN Workshop provides one forum that is well equipped with expertise from around the world to debate a range of complex issues facing the sector. For the benefit of delegates who have not attended previous workshops, he outlined the history of the HTN, including the demand-led nature of its conception following the Kakamega Handpump Workshop of 1992. He noted the recommendation of the Mangochi Workshop held in 1997, that the HTN should be expanded and drew attention to the network's new logo and extended terms of reference that signified a broadening of its scope of activities.

Mr Talbot also drew participants' attention to the need for greater activity by the HTN in Africa and emphasised that the network cannot delay any longer in addressing the pressing need for additional support in the continent. Recognising that the Hyderabad Workshop is the largest of the HTN's Workshops to date, Mr Talbot asked delegates to remember the users of the technology and to ensure that decisions made at the Workshop result in better service delivery and sustainability. He also reiterated that the HTN was a network, dependent upon the interest in and demands it receives from its members. He praised the work of the HTN Secretariat, whose staff is small in number, but highly dedicated.

Using an example from India (approximately 90% of water is consumed for irrigation, 6% for industry and only 4% for water supply), Mr Talbot went on to describe that the drinking water sector

is the most threatened of all water sectors. He stressed that the poor would suffer as a result of the fresh water crisis. Returning to the subject of the HTN Workshops, he stressed that it was important to build on the recommendations made in the Mangochi Declaration. He noted that the Hyderabad Workshop was the first of the HTN Workshops to be held in Asia and encouraged delegates to make it both a success and a worthwhile venture.

Mr Talbot recognised that achieving universal coverage is going to be an enormously complex task. He stressed that in order to achieve the goal, local communities must be the primary decision maker, organiser, maintainer and overseer, a principle that is reflected in the theme of the Workshop. He reiterated the Workshop's objectives and confirmed the need for a set of basic principles for demand responsive implementation to be ratified by delegates before turning to the Africa agenda. Recognising that a solution for an Asian country will not always be replicable throughout Africa, Mr Talbot urged delegates to borrow from Asia where appropriate, stressing that the combined wisdom of all participants could be harnessed, for the benefit of the less advantaged. In conclusion, Mr Talbot expressed his delight at being able to meet old friends, in addition to recognising the contribution made over the years by a number of members who were not able to make the journey to Hyderabad.

3.1.3 Inaugural Address

The late Mr A Madhava Reddy, Hon. Minister for Panchayati Raj and Rural Development, Government of Andhra Pradesh, delivered the inaugural address. On behalf of the Government of Andhra Pradesh, he expressed his thanks to the organisers for holding the HTN Workshop in Hyderabad, the state capital.

Mr Reddy identified that the main focus of the HTN Workshop was very much in line with sectoral reforms envisaged by the RGNDWM, and initiatives being undertaken by his state government. He mentioned the Janmabhoomi programme, sponsored by his Chief Minister Mr Nara Chandrababu Naidu, which has already involved communities in developmental activities – both in planning and implementation. The programme has introduced the concept that

communities will share about 30% of the capital cost of the asset provided to them.

Providing a brief history of the drinking water initiatives in India, Mr Reddy explored and expressed his thanks for the role played by UNICEF, from its support of drilling rigs in 1968 through to the present day. Mr Reddy informed the delegates that his Government has taken major initiatives to improve administration, sectoral co-ordination, sustainability, O&M and community participation. He outlined the activities of his Ministry, citing implementation and coverage statistics, and stressed that his Government has also taken up in a big way an integrated rural sanitation programme.

Mr Reddy outlined the operation and monitoring activities that are undertaken by the department, as well as explaining the techniques being used for groundwater exploration, development and management. These include the latest remote sensing and geographical information systems (GIS). Turning to a subject highlighted by previous speakers, Mr Reddy stated that sustainability of drinking water was threatened by competition and over exploitation of groundwater for agriculture. He outlined his department's initial response – implementation of water harvesting structures and recharge methodologies.

He went on to describe the department's approach to human resource development (HRD) and management information systems (MIS), informing delegates that the status of the State's handpumps and water supply schemes is made available on a Web site. Concluding his address, Mr Reddy stressed that water is susceptible to all types of contamination that can lead to various illnesses. He emphasised the need for safe practices and outlined his department's water analysis activities, before announcing the launch of the State Plan of Action on the 'Child's Environment, Sanitation, Hygiene and Water Supply Project'. He expressed his desire that the planned Hyderabad Declaration would benefit rural development in all countries, before thanking delegates for their attention.

3.1.4 Presidential Address and Vote of Thanks

Ms Erma Manoncourt, Deputy Director, UNICEF, India extended greetings to delegates on behalf of colleagues in UNICEF. She took up the theme of the right of the child to enjoy the highest attainable health standard. Ms Manoncourt stressed that the provision of clean drinking water, as well as measures to ensure hygiene and environmental sanitation are critical to the realisation of a child's right to good health.

Noting that coverage has risen to around 83% of the world's population, Ms Manoncourt also pointed out that around 1.1 billion are not yet covered – the same number as in 1990 – and that those lacking safe water in Africa have increased by 44 million. Ms Manoncourt expressed her view that the coverage figures are subject to downward revision, as the numbers do not reflect easy access and actual usage and there is a growing problem of chemical pollution. Similarly, poor maintenance results in high downtime of safe water supply sources.

According to Ms Manoncourt, about 80 countries comprising 40% of the world's population suffer from serious water shortages. Reasons include over exploitation of groundwater, inefficient use of water in irrigation and industry, environmental degradation and poor management. Ms Manoncourt brought delegates' attention to the fact that nearly 2.9 billion people lack access to safe sanitation. She noted that Africa, in particular Sub-Saharan Africa, is vulnerable to water-related problems and deficiencies and is in need of special support, to promote cost-effective and sustainable technologies, disseminate information and build local capacity.

The water and sanitation sector faces many challenges. Although governments and donor agencies will continue to play a lead role in providing basic amenities, Ms Manoncourt said that she believes their interventions alone are insufficient. She feels that a purposeful partnership between government and civil society can help address and tackle problems of coverage and sustainability in the foreseeable future. The role of users and their communities must be recognised. Ms Manoncourt identified that the switch to DRA requires careful

planning and noted that the HTN Workshop presented an opportunity to learn from experiences from other countries where new approaches have been adopted.

Ms Manoncourt posed a number of questions for delegates to consider during the Workshop and mentioned that as Vision 21 has set the goal of achieving universal coverage by 2025, the theme of the HTN's first workshop in the new millennium was both appropriate and timely. Ms Manoncourt finished her address by wishing delegates a successful Workshop and fruitful outcomes.

Mr Erich Baumann, Director, SKAT-HTN, Switzerland concluded the Inaugural Session with a vote of thanks to the speakers.

3.2 Water Resource Management

Mr Palat Mohandas, Additional Secretary, Ministry of Water Resources, Government of India, chaired the plenary presentations on water resource management. He introduced the theme of the presentations under the topic of 'everyone lives downstream' and stressed the need for ongoing changes in the sector.

3.2.1 Overview

Mr Saul Arlosoroff, Water Resource Management Specialist and formerly Program Manager of the UNDP/World Bank Rural Water Supply and Sanitation Program, introduced himself as a person with 45 years experience in water and sanitation and 15 years experience with handpumps. Stressing his emotional attachment to the HTN, he asked the question: "Why handpumps?", before explaining the role of handpumps in cost-effectively supplying the world's un-served.

Mr Arlosoroff identified that the HTN aims to deal with the poorer sections of the community and stressed to delegates that by 2020 the world's population will be about 8 billion, mainly in developing countries and mostly in cities. He said that excessive use of power pumps, not handpumps and other affordable technologies, is the cause of groundwater depletion. According to Mr Arlosoroff, however, handpumps pay the price. He predicted that people in

developing countries would flood to the cities, if access to water becomes even more problematic.

The speaker called for governments to act on two fronts: 1) To enforce controls on power pumps; and 2) To enforce efficiency increases through conservation measures. He gave specific guidelines to the delegates: identify and shut down boreholes that abstract excessive quantities of water; reduce subsidies on electricity or diesel for power pumps; limit the drilling of wells in the vicinity of existing wells; and introduce abstraction fees based on water metering or size of pump.

Mr Arlosoroff admitted that for a government department to know where every well is located is both challenging and complicated. However, he stressed that the alternative is much worse. He noted that the progress on the provision of drinking water services in India is under threat from groundwater depletion and that the cost of inactivity is most certainly more than the cost of acting to solve the problems now.

Political will and courage are required to make difficult decisions. On a positive note, Mr Arlosoroff mentioned that a number of countries are making progress. He stressed that the introduction of legal regulations calls for comprehensive demand side management, and that the costs of maintaining the existing schemes are likely to be far lower than the costs of building new schemes.

Rounding out his presentation, Mr Arlosoroff gave examples of the water sector in the Middle East. He stressed the need for water conservation, especially in cities and noted that the HTN needs to work to solve the problems of both rural and urban dwellers. He asked delegates to remember that they were dealing not with technology alone but with the weakest groups in the world – the powerless and the remote. He believed that the members of the HTN were involved in an idealistic job – of which they should be proud.

3.2.2 Managing India's Water Resources

Mr Katar Singh, Director, Institute of Rural Management, India presented a very interesting paper on the topic of managing India's water resources. He commenced his presentation by noting that India, as a whole, is reasonably well endowed with water resources, albeit with significant spatial and temporal variations in availability of water and concomitant problems of local scarcity and surpluses. Mr Singh stated that most of India's water sources are polluted, degraded and depleted.

According to Mr Singh, most of India's water is used for irrigation of crops. Growing population, increasing urbanisation, industrialisation and commercialisation of agriculture in conjunction with lack of judicious management have all aggravated the problems of scarcity and degradation of water resources in India. As a result, it is likely that the average amount of utilisable (potable) water available (at present 1250 cubic metres per capita per annum) will fall.

However, demand for water is increasing rapidly and India faces a serious challenge – how to meet the deficit gap. Mr Singh painted a scenario in which water scarcity will become a serious constraint on economic growth and development by 2025. He outlined the existing system of management of water resources in India, highlighting its complex nature, but also stressing that water in India is, generally speaking, not managed properly. He examined some critical issues in managing India's water resources and identified alternatives for resolving them.

He stressed the need to move from the existing 'unmanaged' or 'mismanaged' state of affairs, and called for the introduction of a set of rights for the use and transfer of water that are socially recognised and followed. According to Mr Singh, ownership of water should be vested in the State, and a system of well-defined co-operative property rights in water should be introduced.

At the present time, there is virtually no legal control of Government over surface water resources. Regulation of groundwater is achieved through restrictions on the flow of institutionalised credit in the form

of minimum spacing requirements between wells. These restrictions are not effective. Mr Singh referred to the Chinese system of water rights as a model that could be followed in India. The system of water rights would have to operate on a multi-tier basis and incorporate an institutional mechanism for resolving conflicts at various levels. Water users would have to organise themselves and assume new responsibilities, with the household as the core of a pragmatic water management strategy.

The role of Government should be to enact necessary legislation and provide technical support and funds. Mr Singh said that there was a need to prepare a national advocacy plan for action at all levels. He noted that the Government should work more closely with farmers to improve performance in the irrigation sector. He indicated that strong political will and a sense of urgency is required and called for action in this regard.

3.2.3 A Zimbabwean Experience

Mr George Nhunhama, National Programme Co-ordinator, Ministry of Local Government, Zimbabwe introduced delegates to the water resource issues in his country. He mentioned that competition for water within and across sectors has increased in Zimbabwe due to growth of population and inequitable access to water for various reasons. Growing urbanisation, changing agricultural practices and increased industrial and mining activities have increased water pollution.

Mr Nhunhama told delegates that the severe drought of 1992 (that affected many of the countries in Southern Africa) underscored the fragile nature of the Zimbabwean water sector. It brought about the recognition that there was a need for a comprehensive Water Resources Management Strategy (WRMS). A proposal document outlining the critical areas of analysis formed the basis for discussion between various stakeholders, including the Government and the donor community.

The resulting WRMS is a set of medium to long-term action programmes that are designed to support the achievement of water

resources management and development goals and to implement the national water policy. The Strategy is designed to provide measures to manage water resources so as to achieve sustainable, equitable and economically feasible development, subject to international protocols and principles. Mr Nhunhama explained that the strategic objectives were developed through active stakeholder participation and involvement.

Implementation of the WRMS involved three main areas of support: 1) Technical inputs that led to the production of a wide range of guidelines, and other working documents; 2) Introduction of a management structure comprising a steering committee, three sub-committees, a technical secretariat and pilot projects; and 3) Capacity building, mainly within the Department of Water Development. The guiding principles of the Strategy include the ethic of sharing water equitably. There is a strong focus on water demand management, the aim being to limit water demand, promote equitable distribution of water as well as safeguard the rights of access for future generations. Stakeholder participation in water resources management is also highlighted, including the need for gender issues to be taken into account.

Mr Nhunhama identified that management of water resources in each catchment plays a major role, and that environmental issues are addressed in the Strategy. He mentioned that, currently, there is limited interdisciplinary and integrated land use planning in Zimbabwe. The Strategy promotes integrated water resources management approaches that consider water resources in their totality. Other issues, such as shared international water course systems, treatment of water as an economic as well as social good, and modification of the legal framework have been are dealt with by the Strategy.

New initiatives since the inception of the WRMS include the 1998 Water Act. Mr Nhunhama conceded that constraints to progress still exit and that there is a big challenge still to overcome. However, he believes that Zimbabwe has started to enjoy the benefits of integrated water resources management and is intent on improving the strategies already in place.

3.3 Working with Communities

Mr Simon Chirambo, Ministry of Water Development, Malawi assumed the chair for the initial presentations on the theme of working with communities towards sustainability. Mr Bukar Mustapha, Ministry of Water Resources, Nigeria chaired a second session dealing with the same theme.

Mr Erich Baumann, Director, SKAT-HTN, Switzerland provided a short introduction to the topic. He discussed the issues of sustainability and described the need for involving communities in all stages of development of water and sanitation projects so that a sense of ownership can be assured.

3.3.1 Demand Responsive Approaches

Mr Parameswaran Iyer, Water and Sanitation Program (WSP), India presented a paper that provided lessons from South Asia on the issue of DRA. Mr Iyer proposed that many developing countries have poorly defined rural water supply (RWS) sector policies and weak public sector implementing agencies. He noted that DRA have grown out of the principles that water is both a social and economic good, and best managed at the lowest appropriate level. He also reiterated that women have a key role in the management of water. Mr Iyer went on to describe the features of DRA as: cost recovery; community participation; social intermediation by NGOs; and technology based on users' choice.

Mr Iyer quoted from a global study that has found that DRA increases sustainability. He illustrated five World Bank-funded DRA projects in South Asia, including the cost recovery rules in these projects. He also provided some insight into the management structures that are being used to implement the projects in South Asia. Describing their roles, Mr Iyer stated that NGOs could assist in village selection, mobilise communities, build capacity in communities and assist communities in construction actives. Mr Iyer described the main planning phases and gave examples of community choice in the selection of technology. He provided delegates with an overview of the community procurement process and provided

insight into the impact of the projects at project, government and regional levels.

3.3.2 Working with Communities Towards Sustainability

Mr Paul Edwards, Head of WES, UNICEF, Tanzania introduced a case study of water and sanitation work in Tanzania over the past ten years. He gave the delegates some background information on the situation in Tanzania and its water sector. Despite the 1967 Arusha Declaration that water should be free to all, progress in the '70s and '80s was not encouraging. The 1991 National Water Policy has sought to address the problems of the past by introducing the concepts of cost sharing and community participation. Mr Edwards explained the WAMMA project in Dodoma and the domestic water supply programme in Shinyanga. He described the lessons learned and noted that there was now a much greater chance of sustainability.

Mr Edwards concluded his presentation by stating that he was convinced that full participation of communities is essential to ensuring the sustainability of water services. He was sure that access to adequate support services during various stages of the project cycle is also essential, regardless of the simplicity or complexity of the water technology itself. Noting that Tanzanian policy is ambitious, Mr Edwards said that challenges would need to be faced. These include the transition of Government from implementer to regulator, the development of capacity in both the private and NGO sectors, defining the roles and responsibilities of various actors, ensuring adequate human resources, and ensuring that rights are protected.

3.3.3 Financing of Rural Water Supply Systems from a Rights Perspective

Ms Rachel Blackman, Poverty Research Unit, University of Sussex, UK provided delegates with an analysis of the rural water supply situation in Nicaragua. Ms Blackman commenced by explaining a recent study that she has carried out that has examined the issues of payment for water supply systems in rural areas, focusing on the use of the rope pump in rural areas of Nicaragua. She said that the

requirement for cost recovery on the one hand and the need for a sense of 'ownership' on the other could result in conflict.

Ms Blackman described the study of rope pump use in Nicaragua and stated that the pump has user and institutional acceptance in the country. She noted that in Nicaragua users are responsible for maintenance regardless of whether the pump was donated by Government or self financed. The findings of her research show that credit programmes have been successful at facilitating the introduction of the rope pump, and that user-financing does not have to conflict with the labelling of water as a basic human right. Ms Blackman concluded that the State has a responsibility to see rights met, but other development actors, including the users have an obligation to the practical fulfilment of rights.

3.3.4 Partnerships for Sustainability

Before discussing the activities of Mvula Trust in South Africa, Mr Martin Rall described the creation of the NGO, which was initially set up as a short-term project, but now acts as a permanent institution. The Mvula Trust works on water supply and sanitation projects, as well as projects that involve piloting new approaches, and developing policy, training, capacity building and advocacy work. He described the activities that had worked well (e.g. management of funds and service providers, enhancing sector capacity, cost effectiveness, public/NGO partnership), but was also very open in his exposition of the activities that had not worked as planned (e.g. lack of consideration of people's circumstances, little genuine attempt to offer technology choices, questions as to the overall appropriateness of technology).

Mr Rall highlighted the difficulties of working with private sector consultants, including the problems he had encountered when trying to inculcate an understanding of the principles of DRA. He also described the consequences of poor selection of consultants and the remedies affected by the Mvula Trust. In summing up his presentation, Mr Rall noted the challenges for an NGO working in the field of water and sanitation: the need to engage with and influence local government; the management of and compensation for risk; the need

to improve organisational efficiency, speed of response and project management skills; the requirement to enhance capacity of social consultants and trainers; and the need to determine appropriate levels of service.

3.3.5 Janmabhoomi Programme

Mr A K Pareeda, Secretary to Govt. Andhra Pradesh, India described the innovative Janmabhoomi Programme that is running in Andhra Pradesh. The programme may be thought of in the terms of 'taking the government to the doorsteps of the people'. The aim is to increase development through the introduction of simple, accountable, transparent, and responsive activities that are subject to social audit. The programme is centred on a set of values that include the spirit of sacrifice, diligence, honesty, self-help, and self-respect. The operating principles recognise the right for people to identify and prioritise felt needs in quarterly village meetings, demand that people share costs, allow people to execute community works without intermediaries, but ensure that expenditure is subject to audit.

Mr Pareeda described the way that quarterly Janmabhoomi meetings (Gram Sabhas) take place. The consultations include village assemblies, attendance by officials at village levels, involvement of elected representatives, and participation by self-help groups and NGOs. The agendas allow for inputs from all levels within the community and require that the government officials present at the meetings be tasked with actions. In concluding, Mr Pareeda described the Janmabhoomi monitoring system, which ensures that State Government officials receive feedback on the overall process and its outputs.

3.3.6 The "Supply Chain Initiative"

The "Supply Chain Initiative" is a World Bank study to determine the factors, and derive the principles that contribute to successful private sector supply chains for good and services for RWSS. Mr Anthony Oyo, from the WSP, Washington, introduced delegates to the issues, including the initiative's objective to develop tools to assist development practitioners to create an enabling environment for successful

and sustained supply chains. Mr Oyo described some of the key features of successful supply chains: effective information flow; clear roles; strong relationships between suppliers; effective levels of incentives; non restrictive transaction times, costs and logistical arrangements; and products supplied in markets whose size can sustain the supply chain.

Using audience participation, he demonstrated the complexity of the handpump supply chain and posed the following questions: a) How can we include a supply chain perspective when choosing technology options, and b) How can communities be involved in the process. Mr Oyo gave the delegates some points to consider on both counts. When choosing technology options, he stressed that it is important to consider source location, market size, distribution networks, and repair services. When addressing issues of community involvement, one must recognise that communities have the advantage of knowledge about trading relationships that affect their lives. Mr Oyo pointed out that information flows, existence or absence of credit facilities and stimulation of demand are important points for consideration.

3.4 Technology Development Never Ends

The Chairman of this session, Mr Leif Hommelgaard, DANIDA, Denmark introduced delegates to the thought that although the handpump technology had achieved a certain level of maturity, R&D will always be necessary. The presenters took up the theme of the session by explaining both R&D success and on-going requirements.

3.4.1 Jibon Deep-set Handpump Tubewell in Bangladesh

Mr Abdul Motaleb, SDC-WATSAN, Bangladesh introduced delegates to the Jibon pump, a deep-set handpump that has been developed in Bangladesh. The pump has been commissioned in response to a phenomenon that is becoming common in many developing countries – a declining groundwater table in many parts of the country. Mr Motaleb explained that development of affordable technology in the fields of drinking water pumping and treatment is a core

component of the WATSAN Partnership Project. Development of the Jibon pump commenced with an evaluation in 1997. Goals that included a target price range, and criteria for success were set.

HTN provided substantial inputs into the initial design. In late 1997, the first pumps were installed and subsequent fine-tuning has led to the development of a standardised pump. Mr Motaleb explained that, through the Jibon, the target of reducing the cost of deep-set handpumps in Bangladesh had been achieved. Villagers are now able to afford to buy a household pump that can abstract water from depths of up to 20m. He noted that further cost reductions were being targeted and stressed that finding a solution to the arsenic contamination problem in Bangladesh meant that it was true to say that 'technology development never ends'.

3.4.2 Environmentally Friendly Handpump Options of India

Mr Vishwas Joshi, Project Officer, WES, UNICEF India, described the rural water supply situation in India. He recapped on the development of the India Mark II and Mark III deep-well handpumps before describing the current handpump R&D programme. UNICEF has sponsored the development of a 50mm cylinder version of the India Mark III. The new pump has advantages over the 63mm cylinder version of the same pump, including reduced capital cost and lower weight. It is also feasible to use the 50mm pump with uPVC riser pipes.

The development of low-cost, non-corrosive, non-metallic below ground assembly components has been high on the list of demands from users and water supply agencies. Mr Joshi stated that with a few exceptions the experience with uPVC riser pipe in India has been encouraging. He went on to describe a wide range of R&D initiatives being undertaken in India: development of new PVC couplers; introduction and testing of hydraulic stabilisers; use of fibreglass reinforced plastic (FRP) pump rods; and production of user friendly tools. In conclusion, Mr Joshi presented the concept of the universal cylinder, and described tests underway where India Mark III 50mm cylinders are being installed in India Mark II and Afridev pumps. The feedback to date has been promising. Mr Joshi considered that the

adoption of a universal cylinder would help to reduce inventory costs and provide for additional ease of maintenance.

3.4.3 Addressing the Corrosion Problem in Uganda

Mr Patrick Okuni, RUWASA Project, Uganda gave a brief introduction to the handpump situation in Uganda. The India Mark III (known as the U3 in Uganda) has gradually replaced the Mark II (U2) as the main handpump for rural water supply in deep settings. Mr Okuni mentioned that other pumps are also used in Uganda, among them the Nira, Tara and Consallen. Corrosion of handpump components is a complex problem, and Mr Okuni explained to delegates that even stainless steel is susceptible to bi-metallic corrosion.

Mr Okuni's presentation provided a number of examples of corrosion in Uganda (mainly in the form of crevice, pitting and galvanic corrosion) and the various measures that are being adopted to overcome the problems. A pilot project to test uPVC riser mains has reported no problems to date. Although the current stock of stainless steel will last for a few years, a programme will be implemented to gradually replace worn out components with uPVC. Mr Okuni said that the potential for U3 pumps with uPVC components in Uganda was high, due to their low cost (approximately half the cost of stainless steel) and ease of manufacture. He mentioned that local firms have already shown reasonable capability to produce uPVC components within the country.

3.4.4 The Technology Transfer Process of the Rope Pump

Mr Henk Alberts, Bombas de Mecate, Nicaragua introduced the rope pump that a Nicaraguan company produces for the local market. This company promotes the local production of the pump abroad. Mr Alberts talked about the pump's social acceptance and favourable characteristics, including its high efficiency and availability, easy installation, repair and maintenance, local production and availability of spare parts. He stressed the pump's low cost and applicability over a range of water depths to 60m, and its suitability for use on boreholes and dug wells. Mr Alberts described the rope pump technology transfer process that was initiated as far back as

1993 when a few articles were published on the rope development process.

From 1996 onwards, a series of documents (in English, Spanish and French) have been created. The documentation programme has stimulated a continuous process of communication to all continents. Mr Alberts explained the process of technology transfer normally proceeded through three phases: 1) Feasibility, resulting in a project description; 2) Training and start of production and introduction; and 3) Increase production, promotion and commercialisation. He gave examples of technology transfer activities in four countries: Ghana; Laos; Madagascar and Angola. According to Mr Alberts, several new initiatives are in progress, involving states in India, several African countries and Kosovo.

3.5 Topical Presentations

There was very strong interest from delegates to share their experiences. Therefore, in addition to the main plenary sessions, a number of opportunities for less formal exchanges of experiences were arranged.

3.5.1 Evening Presentations

Due to overwhelming demand, delegates presented papers on a wide range of topics at a series of evening gatherings. A brief resume of each presentation is given in the accompanying box.

Evening Presentations

1. *The Pounder Rig – Mr Peter Ball*

   Mr Ball presented his experiences from the field with the pounder rig – a low-cost method of drilling boreholes. He explained the equipment and how it is used, and provided examples of the cost savings that can be made using the pounder rig. The question and answer session demonstrated that delegates found the pounder rig of considerable interest.

2. *The Concrete Treadle Pump – Mr Juerg Looser*

   According to Mr Looser, the concrete treadle pump is a cost-effective suction pump. Although originally designed for irrigation purposes, the treadle pump is often used to supply drinking water. Mr Looser explained the operation of the pump and showed delegates the detailed construction drawings that he and his colleagues have produced.

3. *Sustainable Handpump Design – Mr Paul Van Beers*

   Mr Van Beers demonstrated his understanding of design concepts by explaining to delegates the common problems found in handpump designs. He described the ways that handpumps could be made user-friendlier and how the concept of sustainability needs to be built into the design specifications from the earliest stages in the design process.

4. *Low Cost Terracotta Water Filter – Mr S Khuntia*

   Researchers at the Regional Research Laboratory, Bhubanewsar, India have designed a low cost method of filtering surface water using a burnt clay disk (TERAFIL). Mr Khuntia explained how the disk sits in the bottom of a water pot and filters out sediment, suspended particles, bacteria and many metallic compounds as water passes to a lower pot.

5. *Self Sustained Sanitation in Medinipur – Mr M V Rao*

   Mr Rao explained the work of the self-sustained sanitation programme in the district of Medinipur, West Bengal, India. Initiated about 10 years ago, the programme has raised toilet coverage from 5% to about 50%, of which 90% are in use. Mr Rao explained that success factors included strong political will, low intervention costs and job creation.

6. *Ethiopian Case Study – Mr Tekka Gebru*

   Handpump water supply schemes and community based management were the twin themes of Mr Gebru's presentation. In 1993, Ethiopia had 22 types of handpump. The programme has now rationalised its approach, giving special emphasis to involvement of the community at all stages, from survey and planning, through to operation and maintenance.

7. *Malawi Case Study – Mr Kabuka Banda*

   Mr Banda presented a paper on the handpump industry development in Malawi, noting the two main pumps in use – the Afridev for deep-wells and the locally designed Malda, a direct action pump for shallow settings. He explained the standardisation policy and explained private sector involvement, noting that the market for both pumps was growing steadily.

8. *Zambia Case Study – Mr Pola Kimena*

   The case study presented by Mr Kimena provided an insight into water and sanitation sector reform in Zambia, including the development of a national water policy in 1994. Mr Kimena described the development and introduction of strategies, as well as the institutional arrangements being implemented to ensure that these strategies are realised.

9. *South Africa Case Study – Mr Boniface Aleobua*

   The sustainable development of groundwater resources under the community water supply and sanitation programme in South Africa was the topic of Mr Aleobua's talk. He described the four-year programme, consisting of seven projects. He mentioned that one of the programme's goals was to strengthen his department's professional and technical capacity.

10. *Arsenic in Bangladesh – Mr Peter Wurzel*

    Mr Wurzel gave an impassioned overview of the problems of arsenic in Bangladesh's groundwater resources. People's lives are at stake; so too is the investment in millions of handpumps throughout the country. Although the full extent of the problem is still being explored, Mr Wurzel explained the activities underway to reduce the impact of arsenic.

3.5.2 Other Presentations

Other presentations at the Hyderabad Workshop included the following:

- a video and presentation on a sustainability measurement methodology by Ms Nilanjana Mukherjee, of the WSP-EAP, Indonesia, that provided delegates with the results of work being undertaken to define and measure sustainability within development projects
- a video on the Latin American experience with handpumps, presented by Mr Henk Alberts, that highlighted the rope pump
- a video of women in technology and entrepreneurship, by the WSP.

3.6 Role of the HTN

The HTN has been operating for approximately six years. Although its Secretariat is based in SKAT's offices in Switzerland, the HTN is a global, membership-based organisation. The Hyderabad Workshop provided a timely opportunity for members to learn more about the network's recent activities and to influence its plans for the coming years.

3.6.1 Achievements, Constraints, Future Plans

Mr Erich Baumann, Director of SKAT, outlined the role of the HTN. According to Mr Baumann, the HTN has become well known internationally and had been instrumental in the advocacy for and the acceptance of affordable handpump technology in many countries. He acknowledged the weaknesses of the network, including the lack of impact in Africa. He asked the Workshop's delegates to consider the future of HTN and its role in optimising the use of scarce resources and improving dissemination of information. Although the HTN was established originally as a network to focus on handpump R&D, members agreed at the Mangochi Workshop that the HTN would expand its scope of activities to include operational research, drilling and digging and environmental sanitation. The change of name and logo reflected this broadened remit.

Mr Baumann stated that over the past few years the HTN had begun to place more emphasis on dissemination of information (newsletters, case studies, standards, manuals, guidelines) and has tried to build stronger linkages with agencies, institutions and projects at country, regional and global levels. The excellent attendance at the Hyderabad Workshop signified that global workshops of this nature were a useful way that the HTN could assist in the dissemination of experiences and best practices. However, overall budgets had been cut in the rural water and sanitation sector and the HTN was hard pressed to deliver all that was demanded of it.

Mr Baumann noted that the impact of the HTN outside English speaking countries had been limited – a problem that must be addressed by the HTN. He described the need to shift a greater proportion of the HTN's operational activities to Africa, where needs were greatest and proposed that funds should be sought to base full-time HTN sector professionals at regional locations within the continent. This would allow the network to provide practical assistance in those parts of the world that are most needing help.

According to Mr Baumann, the HTN has limited resources and needs to be realistic about what it expects to achieve on a small core budget. He proposed that the HTN should retain its technical orientation and focus mainly on handpump-based water supply as its established strength, retaining its role as the focal point for R&D and standardisation. He suggested that the scope of work should include inputs into: a) Institution and capacity building; b) Implementation support; c) Technology selection; and d) Local production, supply mechanism and private sector involvement.

3.6.2 The HTN Web site

Ms Catherine Dia-Ndiaye, SKAT-HTN provided delegates with a brief demonstration of the HTN Web site. She showed a series of Web pages that are located at the Internet domain http://www.skat.ch/htn and described future plans for the Web site. Suggestions and questions from the floor indicated a high level of interest in the Web site and the need for further investment in this

medium of communication, including the use of interactive forms of communication.

Ms Dia-Ndiaye stressed that the Web site was not the site of the Secretariat or the Steering Committee, but the site of the HTN members. She noted objectives are to provide a mechanism for exchanging experiences, reporting on projects, debating R&D issues and discussing topical issues. Ms Dia-Ndiaye asked all members who wished to influence the development of the HTN Web site to contact her with suggestions.

4 Workshop Recommendations

During the concluding plenary sessions chaired by Mr Mohandas, participants ratified a series of recommendations and guidelines to emerge from the Hyderabad Workshop. ***Section 4.1*** details the Workshop's overall recommendations. ***Section 4.2*** provides a summary of the Workshop's recommendations on water resources. ***Section 4.3*** suggests the way forward in the areas of working with communities. ***Section 4.4*** proposes an agenda for continuing R&D on enabling technologies.

4.1 Overall

It is clear from the deliberations of the Workshop that the goal of universal water supply and sanitation coverage remains elusive. After wide-ranging discussions, it was the overall conclusion of the Workshop that to achieve success governments and civil societies must work together. Further, in order to maximise the benefits of working together, the partnerships they create must be genuine and effective.

The delegates believe that the following are required in order to generate an environment that is conducive to success:

- appropriate policies and legislation
- suitable institutional arrangements
- strong political will
- 'teeth' to the legislation.

Universal coverage cannot be achieved without a concomitant increase in the level of funding directed to the water and sanitation sector globally. Unless investment levels are raised substantially, a lack of adequate resources will continue to be a major constraint. Consequently, strategies to secure additional resources must be developed as a matter of priority.

The delegates at the Workshop considered the future of HTN, in particular its role in the dissemination of information. There was overwhelming support for HTN's work. It is believed that HTN can play a major role in the transfer of knowledge and lessons learned from around the world. HTN is a highly valued knowledge

and information dissemination centre for its members. However, it also has a 'voice', and through HTN, its members can affect change – increasingly at very senior levels throughout the world.

It should be noted that the HTN Secretariat's resources are limited and the network's members implement many of its activities. The Secretariat's key role is in facilitating information gathering and dissemination to assist members' efforts in advocacy with governments and involvement with communities.

The **overall** recommendations of the Workshop are as follows:

- The HTN should devote most of its attention to its areas of comparative advantage – groundwater and technology for its exploitation.
- The HTN's Secretariat should continue to focus on establishing the infrastructure and frameworks for lesson learning and knowledge transfer.
- The HTN should work with other networks (e.g. GARNET) to avoid duplication and to ensure that its message is broadly disseminated.
- The HTN's members should play an increasing role in the management of the HTN, through the introduction of regional and/or country chapters.
- The HTN should continue to disseminate legislation and policy development experiences from different countries.
- The HTN should continue to support the demonstration of best practice in water and sanitation projects.
- The HTN should continue to organise workshops and training programmes at international levels for experience sharing and capacity building.

Workshop delegates placed considerable emphasis on the need for the HTN to develop its Web as a vehicle for communicating the network's mission, as well as providing members with a mechanism for discussing matters of common interest. The delegates supported a programme of interactive electronic communication.

4.2 Water Resource Management

In many parts of the world, rural and peri-urban dwellers face the twin hazards of water depletion and water pollution. The resulting deterioration in water quantity and water quality often puts the poorest members of society at an even greater disadvantage. Although progress has been made over recent years, actual coverage is often lower and the condition of water is often poorer than the official statistics. Correspondingly, a major effort is required to reduce the threat to the poor.

The recommendations of the Workshop with respect to **water resources** are as follows:

- The HTN should develop low cost technology in the light of over-exploitation and groundwater pollution.
- The HTN should advocate for the introduction and enforcement of appropriate legislation.
- The HTN should package water resource management concepts for politicians.
- The HTN should encourage countries to take quality and perenniality into account when computing coverage.

On the issue of **water quantity**, the Workshop found that access to water in sufficient quantity is a key issue in many parts of the world. The delegates believe that the HTN has a role to play to ensure that groundwater tapped by handpumps remains accessible and uncontaminated. They recommended that:

- The HTN should promote groundwater recharge and rainwater harvesting.
- The HTN should develop guidelines on conjunctive (competing) uses.

On the issue of **water quality**, the Workshop found that groundwater quality is degrading in a large number of areas. The delegates recommended that:

- The HTN should promote the introduction of water quality surveillance.

4.3 Working with Communities

Over the past decades, major changes in implementation strategies have occurred. These have included the emergence of village level operation and maintenance (VLOM) concepts, use of private sector based service delivery mechanisms, user involvement in decision-making processes and cost sharing by all stakeholders.

It is clear from evidence around the world that supply-driven approaches to the delivery of water and sanitation services are not sustainable. Therefore, demand responsive approaches are required. However, the Workshop delegates believe that issues relating to community participation in local management of water resources are not confined to the water supply and sanitation sector. The issues are part of a much wider framework of governance. Community-based needs identification is necessary, and for maximal success, communities must prioritise water and sanitation services above their other unfulfilled needs. An appropriate policy and decision-making framework must be established to ensure success. Attitudinal changes among policy-makers and implementers will be necessary and capacity building at all levels will be required.

Confidence, based on mutual respect, should be built between institutions and communities and guidelines defining appropriate roles for all stakeholders are required. Communities should be encouraged to take a stronger management role.

It is believed that public funds should flow to and be controlled at the lowest practical administrative level. To avoid widespread misuse, accountability and checking mechanisms must be in place and working properly to ensure proper utilisation of funds. NGOs have an important role to play, particularly in facilitation and training.

In general, communities should pay an affordable contribution to capital cost and full operation and maintenance costs. However, water supply and sanitation charging mechanisms should not disadvantage the poorest members of communities.

The HTN Secretariat has limited resources and cannot provide inputs at community levels. Its members implement the projects at the ground level. Consequently, any activities undertaken by the Secretariat need to add value to the work being undertaken by other actors.

With regard to **working with communities** the recommendations of the Workshop are:

- The HTN should retain and build on its existing strengths, which include:
  - support in the development and selection of appropriate technologies
  - improvement in performance of handpump-based water supply
  - provision of assistance in R&D and standardisation
  - institution and capacity building.
- The HTN should use the influence and respect that it has gained to promote flexible and appropriate options for management of technology and resource.
- The HTN should document and disseminate work carried out and lessons learned by partners in the sector to avoid reinventing the wheel.
- The HTN should supplement the work of others with additional research and development as required.
- The HTN should network with governments and NGOs to document and share experiences on sustainable community-based approaches.
- The HTN should play a role in collation and dissemination of information that relates to the technologies it promotes:
  - facilitation skills for community motivation
  - options for operation and maintenance
  - options for community level financing
  - model water resource legislation
  - costed options for different service levels.
- The HTN should aim to provide expert advice on:
  - options for community water supply
  - options for groundwater recharge and resource management
  - options for individual and community sanitation.

- The HTN should play an advocacy role with major funding organisations to encourage the introduction of more enabling project life cycles.

4.4 Technology Development

Whilst R&D has resulted in a series of field-proven handpump designs that are reliable and easy to maintain, it is clear that technology development never ends. It was the recommendation of the Workshop that the HTN should continue to support R&D on appropriate water and sanitation technology options. The Workshop delegates identified R&D gaps that need to be addressed. Accordingly, the main technology issues requiring further R&D relate to standardisation, local production, matching borehole and pump specifications, corrosion resistance, monitoring and drilling.

4.4.1 Standardisation

Standardisation has been a recurring theme at the HTN Workshops, and the topic is often the subject to considerable debate. Whilst it can be shown that inappropriately selected technologies can jeopardise sustainability, the trade-off between too much and too little choice must be finely judged. It was the view of Workshop delegates that standardisation on a small range of handpumps in one country supports sustainability. The recommendations are that:

- The HTN should promote standardisation by either national standards organisations or the government authorities responsible for rural water supply. Countries might select one or a few pump types for use.
- The HTN should continue to produce and maintain the international specifications of public domain handpumps. These documents may be used as the basis for national standardisation. Few countries will prepare detailed specifications of their own.
- The HTN should continue to co-operate with the International Standards Organisation (ISO) working group for handpumps. ISO standards should concentrate on standardised mounting arrangements and performance and safety criteria.

- The HTN should promote independent quality assurance in all handpump procurements. Specifications should form the basis for third party quality assurance.

4.4.2 Local Production

It is believed that local production is important for the stimulation of local delivery mechanisms. It was the view of delegates that local production should be promoted wherever feasible. The Workshop's recommendations are that:

- The HTN should support and advocate for regional production, in which two or several manufacturers from countries in the region co-operate in the production of pumps. These joint ventures could include part production in several countries and mutual support in marketing.
- The HTN should continue to provide technical assistance to local manufacturers for tooling, production processes and quality control. The assistance should also include the advocacy for procurement processes that give local industries a fair chance versus imported pumps.

4.4.3 Matching Borehole and Pump Specifications

In many cases, handpump and borehole/dug well specifications have been developed in isolation. This can lead to situations where boreholes are rejected simply because they fail to pass acceptance tests that were meant for borewells fitted with power pumps.

Handpumps and boreholes/dug wells should be looked at as a single water supply system. Both pump and borehole should be specified in such a way that the performance of the two components match each other. It is believed that this approach could effect considerable reduction in investment costs worldwide without reducing performance. Correspondingly, the Workshop recommended that:

- The HTN should conduct studies and prepare guidelines for congruent specifications.
- The HTN should promote sound technical solutions for prevention of ingress of polluted water from the immediate surrounding of the pump.

4.4.4 Corrosion Resistance

While satisfactory corrosion resistant pump models are available for shallow and medium deep wells with aggressive water, extra deep-well pumps that are corrosion resistant are still either very expensive or unreliable. The delegates recommended that:

- The HTN should promote and co-ordinate R&D efforts to design affordable solutions for pumping systems over 40 metres.

4.4.5 Monitoring

Over many years monitoring and data collection has been neglected worldwide. Thus, reliable data on handpump performance is not available. In order to rectify this situation, the Workshop recommended that:

- The HTN should renew is efforts to promote monitoring. It should identify partners that can do the data collection and co-operate with them in the analysis and the dissemination of the results.

4.4.6 Drilling

From a comparison of global drilling costs, it is evident that the cost of drilling boreholes in Africa is high. The reasons are not fully understood. A reduction in cost would assist sustainability, as the cost of drilling tends to outweigh the cost of the handpump by a significant extent. The Workshop recommended that:

- The HTN should undertake a comparative study to identify reasons for high drilling costs and provide specific recommendations.

5 The HYDERABAD Declaration

Although most countries are implementing low-cost water supply and sanitation technologies, and many are using participatory approaches, the growing global water supply crisis is making the task ever more demanding. The Hyderabad Workshop found that advancement of the sector in many developing countries, particularly those in Africa continues to be hampered by a lack of resources and conflicting priorities. However, experiences from around the world indicate that by working together governments and the civil societies they represent can plan, implement and operate appropriate and sustainable water and sanitation solutions. ***Section 5.1*** outlines and presents the 'The Hyderabad Declaration' — a call for prioritisation and action so that safe water and sanitation can be secured for all. ***Section 5.2*** summarises the Workshop's valedictory remarks.

5.1 A Call for Prioritisation and Action

Whilst the vision of a world in which all people enjoy the use of hygienic sanitation facilities and adequate safe water remains far away, lessons from the Hyderabad Workshop will ensure that progress towards the goal of universal coverage is accelerated. Sharing of experiences by water and sanitation practitioners from around the world is a pragmatic and cost-effective way of ensuring that the goal can be achieved within the present generation. The following declaration was ratified by the Hyderabad Workshop delegates. It calls on multi-lateral and bi-lateral donors to increase their support to water supply and sanitation programmes globally. In particular, the need for additional assistance in Africa is considered to be vital and growing emphasis on cost recovery should not put the poor at a further disadvantage, as access to clean water remains a basic human right.

The Hyderabad Declaration, 10th March 2000
Working Together to Secure Safe Water and Sanitation for All

Although more than 2 billion people have gained access to safe water through low cost facilities, more than one billion are still waiting their turn and almost half of the world's population lack access to adequate sanitation facilities.

In an effort to fight poverty and to improve standards of living and health of poor people, HTN, the Network for Cost-effective Technology in Water Supply and Sanitation, aims to bring safe water and sanitation services to the un-served. HTN promotes sound technologies, which are affordable and responsive to the needs of the users. We, the members of HTN, met at an International Workshop in Hyderabad, India. We analysed and discussed the challenges facing the water sector throughout the world, drawing on the expertise of over 200 senior professionals from 38 countries.

We conclude that a conducive atmosphere for eventual success exist. However, we are also mindful of the growing, often conflicting demands for water that threaten the security of drinking water sources. Complacency is not an option: the twin threats of deteriorating water quality and falling groundwater levels in many parts of the world can have a disastrous effect on the sustainability of low-cost facilities such as handpumps.

We call upon governments, working with sector partners, to facilitate the provision of safe drinking water and sanitation systems to their people, giving preference to the disadvantaged, as a matter of priority. We urge governments to adopt management practices that provide for accountability at all levels. Strong actions need to be taken to combat pollution and arrest environmental degradation, and to prevent over abstraction and wasteful practices. We consider comprehensive legislation, and its faithful enforcement as central to this task.

Many countries are now adopting policies that allow communities to take part in the planning, construction and operation of their water and sanitation systems. However, existing structures of governance must change to translate policy into practice and ensure that ownership of and control over water and sanitation assets is placed at appropriate levels within society. To achieve universal coverage within the present generation, governments and civil societies must work together and forge genuine and effective partnerships.

We stress that support to communities has to be based on expressed demand. Communities have to play a leading role in the selection of technologies. Professional guidance, training and capacity building at all levels are needed to ensure that the resulting choices are properly informed. The growing emphasis on cost recovery from users has the scope to bring about a greater level of sustainability. However, 'user-pays' approaches risk leaving out the poorest members of society and this must be guarded against.

The HTN will continue to invest in the mechanisms for dissemination of information and the exchange of best practices. We urge our partner organisations, particularly international donors, to take cognisance of the highly favourable leveraging effect provided by their investment in the HTN.

We urge the multi-lateral and bi-lateral donors to provide an increased level of funding to water supply and sanitation programmes globally, especially in Africa. This region requires urgent national and international support, and affordable, sustainable technologies to solve its water and sanitation crisis.

In our individual capacities, as representatives of our respective organisations and as HTN members, we pledge to renew our efforts in partnership, so as to realise our vision of a world in which ALL people enjoy the use of hygienic sanitation facilities and adequate safe water.

5.2 Summary of Valedictory Remarks

Mr Palat Mohandas presided over the Valedictory Session. He congratulated the drafting committee on the work it had undertaken on the Hyderabad Declaration. He noted that successfully capturing the inputs of 200 people was a marvellous job.

Mr Nigel Fisher, Regional Director, UNICEF, South Asia, considered it a privilege to have participated in the latter stages of the Workshop. He reaffirmed water as a basic human right and noted that the water and sanitation sector is under-resourced. He stated that the HTN had a strong role to play and that handpumps remain a viable option. Moving to the global scale, Mr Fisher highlighted the tensions created by the 'politics of water scarcity'. He noted the deterioration of water quality and threat of arsenic that is not limited to Bangladesh, but also affects West Bengal. In conclusion, Mr Fisher praised the role of the HTN in India and thanked delegates for their deliberations and recommendations.

Mr Alan Court, Country Representative, UNICEF, India, gave the concluding remarks. In a reference to the untimely death of Mr Reddy, he noted that the week had been tinged with tragedy. He suggested that delegates could play an important role in ensuring that universal coverage is achieved. Mr Court explained the differences he saw between the 1970s and the present day in India; he noted that even in the remote areas of the country water and sanitation was now viewed as a right, an achievement that he conferred on Mr Mohandas and his colleagues. He asked delegates do their utmost to guide policy, listen to demand, interact with each other, and convert ideas into practical action so that benefits are brought to the people – both in the next three years and beyond.

Messrs Erich Baumann and Rupert Talbot closed the Valedictory Session with votes of thanks for all those who had contributed to the success of the Workshop.

Abbreviations

DANIDA	Danish International Development Agency
DRA	Demand Responsive Approach(es)
ESA	External Support Agency
FRP	Fibreglass Reinforced Plastic
GARNET	Global Applied Research Network
GIS	Geographical Information System
GOI	Government of India
HTN	Network for Cost-effective Technologies in Water Supply and Sanitation (formerly the Handpump Technology Network)
HRD	Human Resource Development
ISO	International Standards Organisation
MIS	Management Information System
NGO	Non-Government Organisation
O&M	Operation and Maintenance
R&D	Research and Development
RGNDWM	Rajiv Gandhi National Drinking Water Mission, India
RWS	Rural Water Supply
RWSS	Rural Water Supply and Sanitation
SDC	Swiss Agency for Development and Co-operation
SKAT	Swiss Centre for Development Co-operation in Technology and Management
UNDP	United Nations Development Programme

UPVC	Unplasticised Polyvinyl Chloride
UNICEF	United Nations Children's Fund
VLOM	Village Level Operation and Maintenance
WATSAN	Water and Sanitation
WB	World Bank
WES	Water and Environmental Sanitation
WESNET	Water and Environmental Sanitation Network
WRMS	Water Resource Management Strategy

Appendixes

Appendix 1 Workshop Agenda

Appendix 2 List of Registered Participants

Appendix 3 List of Papers Presented