



*Millennium Water Alliance*  
**Water & Sanitation Program for Sub-Saharan Africa:  
A Framework for Action**

**Briefing Paper  
August 2003**

---

**WATER AND POVERTY IN THE 21<sup>ST</sup> CENTURY**

In any newspaper article, lecture or briefing paper on the subject of water it has become *de rigueur* to cite the Millennium Development Goal of halving the proportion of people without access to drinking-water by 2015. Along with basic sanitation, water supply is fundamental for safeguarding public health. And it is largely because of public water supply and sanitation that industrialized countries no longer suffer the devastating cholera and typhoid epidemics that were the scourge of Europe and North America during the 19<sup>th</sup> century. However, water supply has a more profound role to play in poverty alleviation and development in general than might be first imagined. The links between water supply and child mortality are self-evident but the relationship with other Millennium Development Goals such as ‘achieving universal primary education’ or ‘improving maternal health’ is more obscure. This briefing paper will clearly establish the links between water and all of the Millennium Development Goals.

The focus of this paper is squarely on Sub-Saharan Africa. Statistics for Sub-Saharan Africa paint the bleakest of pictures: more than half of all under-five deaths expected before 2010 will occur here. As a region it has not only the highest proportions of adult HIV prevalence in the world, people living on less than \$1 a day, and maternal mortality ratio but also the lowest rates of primary school attendance, life expectancy and access to safe drinking-water supply.<sup>1</sup> In fact the latest figures indicate that more than 270 million people in Sub-Saharan Africa do not have access to safe drinking water, and four-fifths of them live in rural communities.<sup>2</sup>

The underlying theme of this paper is a framework for action that outlines how we can respond effectively to the water and sanitation challenge in Sub-Saharan Africa. The framework will emphasize the importance of an integrated or holistic approach to water supply and sanitation. In essence this means that we must provide an appropriate balance of ‘hardware’ and ‘software’ interventions. We propose that this integrated approach, from a technical perspective, is further reflected in its implementation through partnership. A partnership approach is advocated in recognition that the diverse benefits that accrue from water and sanitation programs can be best

---

<sup>1</sup> The State of the World’s Children 2003, UNICEF

<sup>2</sup> UNDP Human Development Report 2003

achieved by pooling an equally diverse skill set. Lastly we also stress the importance of participation and capacity building, as it has been shown that more participation means more chance of sustained and beneficial impact at lower cost.<sup>3</sup>

## **TOWARD THE MILLENNIUM DEVELOPMENT GOALS**

A strong case can be made showing how improved water and sanitation bring about significant and permanent change to the root causes of poverty that are embodied in the Millennium Development Goals.

### **Goal 1 Eradicate extreme poverty and hunger**

While health benefits are often thought of as the principal benefit from improved water supplies and sanitation, there is an important link with livelihoods. Collecting water from distant sources is both time consuming and exhausting – one 5 gallon bucket of water weighs more than 40 lbs and may be carried over a distance of five miles or more. Providing water close to the home or community frees-up time for more productive activities. Furthermore, because of the resulting improvements to health, greater productivity is achievable because far fewer days work are lost due to ill health. There are also many good examples of the productive uses to which domestic water supply can be put. Kitchen gardens and fruit trees improve nutrition and can make an important difference during times of drought. Other food production such as eggs and meat are more successful when reliable water supplies are available to ensure livestock survival. Community water supplies can also lead to income generation activities such as bread making, hairdressing and brick-making.<sup>4</sup>

### **Goal 2 Universal primary education**

While water supply or sanitation cannot bring schools or teachers, it can ensure that children especially girls are more able to attend and teachers more willing to work at a school with such basic facilities. Children that regularly suffer diarrhea and other water and sanitation-related diseases miss classes. Schooling is not necessarily free. Income from productive uses of water can help pay for education. Children stay away from school because they are needed to carry out domestic chores or tend animals while their mothers are collecting water. Girls often help women collect water and the time taken in collecting water can prevent them from attending school. Lack of adequate school sanitation facilities can mean that girls are less likely to attend school, and many more girls choose to leave on reaching puberty since no privacy is afforded them. There is also a growing interest in school sanitation and hygiene projects that aim to bring about hygiene and sanitation change through child-to-child, and child to parent education. Having water supplies and sanitation facilities in schools greatly assists this educational process.

### **Goal 3 Promote gender equality and empower women**

The burden and drudgery of collecting water is mostly borne by women, though children especially girls are also involved. In rural Africa women often walk up to 10 miles a day to collect just one bucket of water. Providing water close to home frees-up women's time, which can then be put to more productive use such as tending kitchen gardens or working in cottage industries. Income generation also leads to increased status for women.

---

<sup>3</sup> Narayan, D (1995) The contribution of people's participation: evidence from 121 rural water supply projects. Environmentally Sustainable Development Occasional Paper Series No. 1, The World Bank

<sup>4</sup> International Symposium on Water, Poverty and Productive uses of Water at the Household Level, 21-23 January 2003, Muldersdrift, South Africa.

In addition to reducing the burden of work, involving women in water and sanitation projects is a direct means of empowerment. Not surprisingly women are highly motivated to ensure the success of water projects and participate fully in the planning of water facilities. They are often involved in the management and maintenance of community water systems, and cope well with non-traditional work such as hand-pump maintenance. Most water development programs now incorporate the promotion of gender awareness and emphasize the inclusion of women on village water committees. Lastly, sanitation provision is fundamental to women's dignity. In some cultures, when there is no toilet, women are expected to wait until the cover of darkness before being able to defecate.

#### **Goal 4 Reduce child mortality**

Children are most vulnerable to disease resulting from contaminated or inadequate quantities of water for drinking and personal hygiene. Diarrheal disease associated with water and sanitation leads to 2.1 million deaths each year – the majority of which are children.<sup>5</sup> It has been estimated that 5,000 children die every day from water and sanitation related diseases. Malnutrition, which is the most significant cause of immunodeficiency, is associated with about half of all child deaths. Frequent bouts of diarrhea lead to further deterioration in nutritional status and ability to resist disease. In mountainous regions, mothers wean their children early - leaving them more vulnerable to infectious disease – because they are unable to carry both water and the child when returning up the steep slopes to home.<sup>6</sup>

#### **Goal 5 Improve maternal health**

A direct link can be made between maternal health and water collection. Carrying heavy loads leads to spinal deformation that can result in obstruction of the birth canal. This puts both the mother's and infant's life at risk. Anemia is common in pregnant African women, and it is exacerbated by the continued heavy work of water collection. This has the potential to impair fetal growth and adversely affects the quantity and quality of breast milk.<sup>7</sup> It has been documented that pregnant women sometimes continue collecting water until the day they give birth. Indirectly, maternal health may be at risk through accidents occurring during water collection. Waterholes can have steep sides, and slippery paths may need to be negotiated to reach the water.

#### **Goal 6 Combat HIV/AIDS, malaria, and other diseases**

There are a number of issues that link HIV/AIDS with water supply and sanitation. For example, infected people are more vulnerable to opportunistic pathogens causing diarrhea and skin diseases, which can be controlled to some extent by safe water and sanitation. Caregivers need good access to water and sanitation to reduce time spent away from home, and access to these services is also important for the comfort and dignity of patients. Water used for food security and improved nutrition also helps people to remain healthy. Of course, safe water is essential for ingesting any medications.

---

<sup>5</sup> Water, Sanitation and Hygiene Links to Health: Facts and Figures, WHO 2002

<sup>6</sup> Children and Water: Development Issue, WaterAid

<sup>7</sup> Curtis, V (1986) Women and the transport of water, IT Publications

With regard to malaria and other diseases such as filariasis and schistosomiasis, traditional water sources can be breeding grounds for the insect and aquatic vectors. The provision of community water-points with adequate drainage can greatly reduce the risk of such diseases. Sanitation systems prevent human feces reaching the environment, thus breaking the transmission chain of fecal-oral disease.

### **Goal 7 Ensure environmental sustainability**

Within the water sector, integrated water resource management (IWRM) provides a framework for environmental sustainability. IWRM facilitates analysis and understanding of the competing needs for water, leading to the development of appropriate policies. These policies are both practical and achievable, and go hand in hand with the provision of water supply for domestic and productive purposes, and sanitation. For example, source water quality can be improved by promoting sustainable agricultural practices, conservation and pollution control. Improving local management of water resources through facilitating local control of water systems raises awareness of water issues, particularly the rational use of water and importance of watershed management.

### **Goal 8 Develop a global partnership for development**

Community water supply programs represent an entry point to the development of democratic society, leadership and good governance. A water supply program can be the catalyst for this process firstly because there is a need for the community to organize a representative management committee. Secondly, building a community water system involves the community in an enormous amount of decision-making, and this continues after project completion as the community assumes responsibility for operation and maintenance. Very often a water supply project is the first time that a community must learn how to administer a communal utility. Properly facilitated, the community will in effect complete a public enquiry that deals with a wide variety of issues including land and water rights, location of water points, capital and operational cost contribution. There are a wide variety of new skills learned in this process including technical, managerial and leadership. It is a confidence building experience for the community as a whole and often leads the community to undertake other projects entirely of its own initiative. The characteristics of good governance (participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and following the rule of law)<sup>8</sup> are broadly embodied in community water supply programs.

## **RESPONDING EFFECTIVELY TO THE CHALLENGE IN SUB-SAHARAN AFRICA**

Turning now to our proposed 'Framework for Action', we describe below the main components of a water and sanitation program with a first-year operating budget of \$50 million. At this level of investment it would be conceivable to begin operations in 10 countries in the Sub-Saharan Region with a view to expansion as the strategy is proven to be effective and accountable. The principal goals of this program are threefold:

1. Increase the level of access to sustainable, safe water and sanitation services among poor and marginalized populations.
2. Reduce the prevalence of water and sanitation-related disease.

---

<sup>8</sup> <http://www.unescap.org/huset/gg/governance.htm>

3. Promote the productive use of domestic water supplies for the purposes of greater livelihood security and poverty reduction.

### **Country selection**

It is envisaged that a program of this nature would be beneficial for countries attempting to qualify for funding under the Millennium Challenge Account (MCA). Therefore the overarching criteria for country selection would be based on MCA guidelines. Namely, that the recipient country has a strong commitment to: good governance, the population's health and education, and sound economic policies that foster enterprise and entrepreneurship. We would add several complementary criteria that indicate a clear need for intervention in the water and sanitation sector. These should take particular account of the following:

*Health and poverty indices* such as the under-five mortality rate, life expectancy at birth, adult HIV prevalence rate, and gross national income per capita.

*Urgent need*, specifically with regard to water supply and sanitation services, e.g. only 12% of rural Ethiopians have access to an improved water supply and only 7% to safe sanitation.

*Existing partnerships.* Partnerships take time to develop but pay back this investment in greater and more sustainable impact. Typically they consist of partners from national and local government departments, NGOs, Community Based Organizations (CBOs) and the private sector. Existing partnerships will give the proposed water and sanitation program a 'head start' and serve as a model for replication in other countries.

*Potential for influencing policy.* 'Business as usual' is not acceptable. We must advocate for change at local and national government levels and press for more responsive and flexible water policies. In developing countries, concepts such as the economic value of water, decentralization, private sector participation and, importantly, regulation and consumer protection are still relatively new. We should choose to work in those countries where it is apparent that governments have a more open attitude to new ways of doing business.

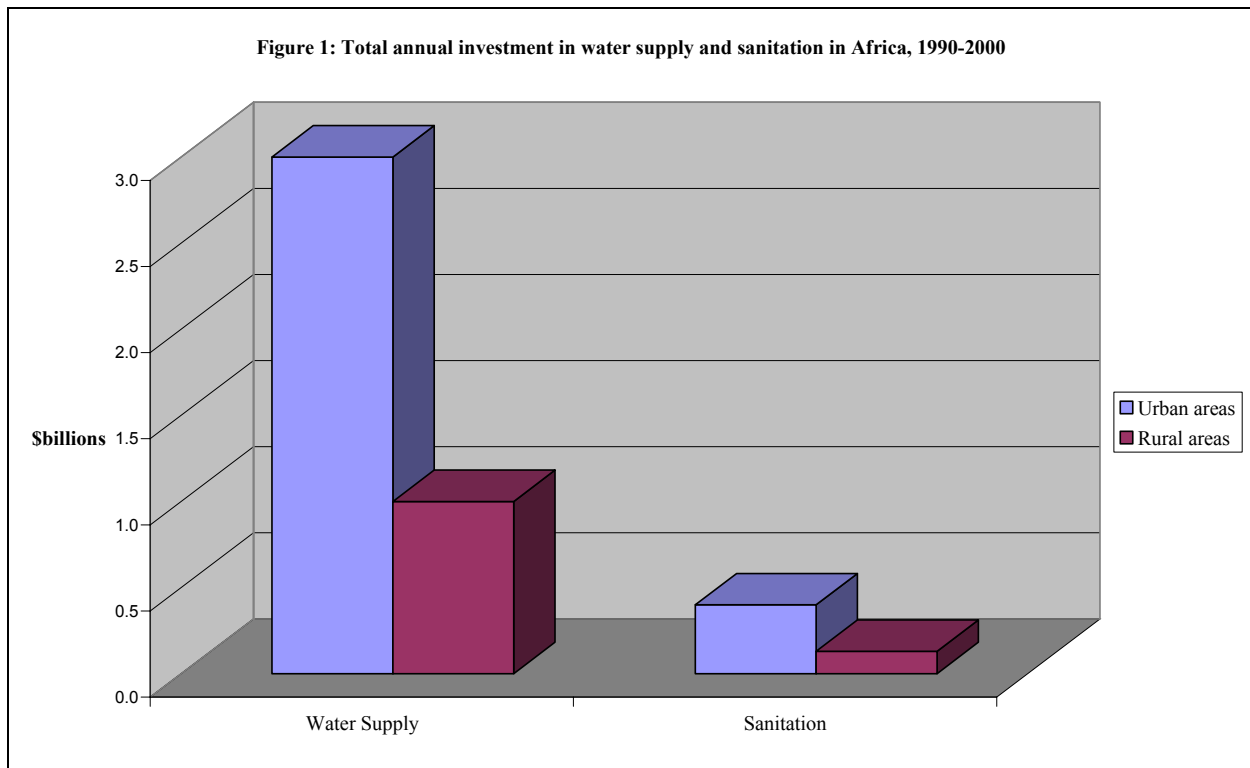
### **Redressing the balance**

During the last decade (1990-2000), the annual investment<sup>9</sup> in water supply and sanitation in the African continent was around \$4.6 billion.<sup>10</sup> However, it should be of some concern that this investment was biased both toward urban neighborhoods and toward water supply over sanitation. The following figure illustrates the extent of this investment imbalance. While the higher level of investment in urban areas may be justified to some extent by higher construction costs, the rural poor are often remote from central Government thus invisible and inaudible to the politicians with the result that their needs are easily overlooked. We therefore propose to redress these imbalances. First, the program would operate predominantly though not exclusively in rural communities. Providing access to poor peri-urban communities would not be ruled out. Second, a much greater proportion of funding would be allocated to sanitation interventions than the levels typical in present day programs.

---

<sup>9</sup> Annual investment includes national investment and external aid combined

<sup>10</sup> Global Water Supply and Sanitation Assessment 2000 Report, WHO/UNICEF



### **Integrated approach**

It is now widely accepted that water supply, sanitation and hygiene promotion must be implemented as an integrated package in order to maximize the potential health benefits. Safe drinking water is necessary to prevent waterborne diseases but water must also be provided in adequate quantities to facilitate personal and domestic hygiene. Fecal-oral disease is just as readily transmitted by hands and food as it is through contaminated drinking water. Simple hand washing has a major role in preventing disease transmission but successfully encouraging this practice will only happen if water quantity is given equal or greater importance than water quality. Preventing other water-washed diseases such as trachoma and scabies is also dependent on water availability for personal and clothes washing.

Much water and sanitation-related disease results from a lack of sanitation systems such as simple pit latrines. Sanitation systems represent a primary barrier that prevents human feces reaching the environment thus closing down the various transmission routes through water, hands, soil and insect vectors. Diseases caused by helminths such as ascariasis, schistosomiasis and hookworm can be prevented through the provision and use of latrines.

Water and sanitation systems may be considered as the ‘hardware’. Also needed is the ‘software’ in the form of hygiene promotion. Among the many methods used to encourage hygiene behavior change, some of the most effective include PHAST (Participatory Hygiene and Sanitation Transformation), Social Marketing, and School Sanitation and Hygiene Education. This balance of hardware and software intervention has been very succinctly presented in the

‘Hygiene Improvement Framework’<sup>11</sup> developed by USAID’s Environmental Health Project. The ‘Framework’ also refers to the importance of the institutional and policy environment.

However, the ‘integrated approach’ is rooted in the idea that water and sanitation is above all about improving health. We propose to extend the integrated approach to include a livelihoods component. Generally most aid agencies working in the water sector have not fully capitalized on the potential benefits from developing community water supplies. It is our view that additional opportunities should be sought in order to enhance food security and the quality of nutrition, and to stimulate income generation. This will require that we become more innovative in the exploitation of water resources and collaborate closely with other sectors working toward the elimination of poverty.

### **Partnership for development**

Partnership extends the concept of an integrated approach in the sense that greater program impact can be achieved through integrating the specialist knowledge and skills of a diverse group of stakeholders. In effect we are simply advocating for a team effort in order to maximize both the benefits and reach of our water and sanitation program. The partnership approach is also founded on the conviction that a water and sanitation program can contribute to all of the Millennium Development Goals. However, to be effective we must form a partnership that combines expertise in health, agriculture, environment, entrepreneurship, and policy development. It is unrealistic to expect one entity to be able to offer all these skill areas. The partnership should consist of external entities such as international NGOs and the private sector; and local partners including government, universities, NGOs and CBOs.

A further aim of the partnership approach is to increase the capacity of local partners. This brings about permanent change through exposure to new methods, formal and hands-on training, and confidence building. It reduces dependency and ensures the right to self-determination. At its core, the partnership approach rests on the assumption of valuing other people’s knowledge and dignity. It affirms the right and responsibility of the stakeholders themselves to lead, not just participate in, their own development process. The role of the external partners is to foster and support that local leadership and facilitate working relationships among the key local stakeholders.

Our ‘Partnership for development’ would be modeled on the approach developed by the CORE (Child Survival Collaboration and Resources) Group for their Polio Eradication Initiative. CORE is a coalition of 28 US NGOs operating child survival projects in developing countries. At country level a secretariat will be based in the offices of one of the NGO partners. The secretariat is designed to provide the partners with a voice and face at the national level, and the funding agency with a source of information on progress and obstacles. It also provides the partners with insights on government and international agency policies and priorities, so linking the efforts of the partners at local level to efforts at the national and international level. It is important to note that the secretariat will work for the interests of the partners but does not manage the partnership.

---

<sup>11</sup> <http://www.ehproject.org/Pubs/GlobalHealth/GHCArticle.htm> Environmental Health Project, Office of Health, Infectious Diseases and Nutrition, Bureau for Global Health of USAID

We would also propose to establish a US based three-person secretariat to consist of a Chief Executive Officer, Chief Finance Officer, and Chief Technical Officer. The secretariat would be responsible for facilitating collaboration among partners, training and technical assistance, as well as financial management and administrative support.

### **Participation and capacity building**

The realization that participation is fundamental to the success and sustainability of community water systems has taken several decades to take root. And yet this common-sense approach was advanced back in the 1950s in Wagner and Lanoix's classic text:

*“When help is given or imposed from above on a continuing basis, the local population or municipality does not share or participate in the undertaking and does not develop a sense of ownership and pride in the system. This type of help does the least to encourage local communities to take action in solving their own problems. Eventually the local people must assume the major responsibility for utilities of this kind, which are purely local in character and which they alone use.”<sup>12</sup>*

In our proposed water and sanitation program, community participation will lead to a greater degree of project effectiveness and efficiency. This is because the program will place emphasis on involving community members in decision making at all stages of the project cycle. The first decision to be taken by the community is whether to participate. The demand-based approach will be adopted in which communities express their demand to participate through a willingness to contribute to capital costs in cash or kind. Community investment in the project is seen as a means to instill a sense of ownership and responsibility for the upkeep of the water system. Other examples of decision-making include the level of technology, site selection, responsibility for operation and maintenance, and tariff setting. The community in consultation with the partner agency can take all these decisions.

Project efficiency also benefits from participation when there is a two-way flow of information between the community and partner agency. For example, local knowledge about land and water rights is essential for project planning and implementation. Similarly efficiency is enhanced when both parties are clear about each other's roles and responsibilities.

Participation also brings benefits of empowerment and equity to communities. By involving community members in decision making and implementing training activities, men and women are empowered through acquiring new skills, knowledge and confidence. Thus the transfer of ownership and responsibility for the water system empowers the community as a result of their increased control over resources. Our program would focus especially on the empowerment of women. For example, water committees should consist of an equal number of men and women. Training would be biased toward women as they are primarily responsible for household water management and therefore have more interest in the sustainability of improved water supplies.

Greater equity can also result from community participation as this promotes transparency and accountability of development assistance. More equitable access to water supply is the result

---

<sup>12</sup> Wagner, E.G. & Lanoix, J.N. (1959) Water supply for rural areas and small communities. World Health Organization.



because of the greater awareness within the community of the project aims and objectives. Encouraging full participation by all members of the community reduces the risk of wealthier or more influential minorities benefiting at the expense of the majority.

Participative methods used to promote better understanding of disease transmission and the importance of hygiene behavior change can and have been adapted to include HIV/AIDS awareness. A promising approach to bringing about permanent change in attitudes to hygiene behavior and to challenging traditional views of disease transmission is to incorporate such activities into the school. Children are more open to discussion of hygiene-related subjects that would otherwise be considered taboo. Children pass on these 'good' hygiene messages to their younger siblings for whom they are often responsible. This is known as the 'child-to-child' approach, which teaches children to become health 'ambassadors' for their whole family.

### **Technology choice**

Developing water and sanitation systems inevitably means that decisions must be taken on the type and level of technology. There are several principles that should govern technology choice. For example, the technology must be acceptable to the community in terms of providing a level of service that satisfies the demand. The community or household is much more likely to maintain technology that makes a useful contribution to the quality of life. It must also be culturally and socially acceptable to the user. If not, and in spite of potential benefits, it will simply not be used. Clearly the community must be involved in decisions concerning technology choice.

Another important principle relates to the maintenance of technology. The concept of 'village level of operation and management of maintenance' (VLOM) that was promoted by the World Bank and UNDP in the 1980s is still very relevant today. Minimizing the need for external assistance by ensuring that the technology can be easily maintained and repaired by the community is essential to reduce downtime.

While technology should not be unnecessarily complex, it does need to be more innovative. For example, rainwater harvesting represents a simple technology that has so far been underexploited. In planning the development of water systems, we should also consider whether a minimal increase in capital investment could bring long-term returns through the productive use of household water supplies. Re-use of grey water and sanitation systems, where culturally acceptable, that can be a source of irrigation water and natural fertilizer warrant further interest.

### **Summary**

The depth and breadth of poverty in many Sub-Saharan Africa communities is bewildering. The enormous problems of food security, widespread disease, illiteracy, unemployment and political insecurity are complex and inter-related. We must of course take up the challenge to address all of these problems. We propose an innovative water and sanitation program that can contribute toward poverty alleviation across a wide spectrum of intervention. This briefing paper has illustrated how such a program can contribute much more than the provision of basic infrastructure that we take so much for granted. Community water supply and sanitation can contribute and facilitate the potential of all people to lead productive and dignified lives.

Our proposed water and sanitation program will emphasize much broader aims than improving the health of the beneficiary populations. It will lead to the empowerment of the poor, particularly women. It will foster the skills of leadership and sow the seeds of democracy – keystones of good governance – at the grass roots level. Through innovative techniques new opportunities for income generation and food security will be promoted and developed. We will achieve these aims through working in a partnership of international, national and local organizations. Through participatory approaches we will give meaning to the right of all people to self-determination. And in doing so, we will build capacity and self-esteem that will bring about a greater momentum to the process of poverty elimination.