



THE HOWARD G.
BUFFETT

INTEGRATED WATER RESOURCE MANAGEMENT

GLOBAL WATER INITIATIVE | 2007



INTRODUCTION

Two primary areas of focus for the Foundation are development and delivery of water, and agricultural resource management. Both of these areas are fundamental for human development and well-being. They are also interdependent and the management of one often affects the other. This document lays out our objectives and plan for our work in water resource management.

The following pages provide background on water issues, the Foundation's strategy and an outline of our Global Water Initiative. Our initiative is designed to recognize the needs of both domestic and productive uses including livelihoods which depend on water for small scale irrigation systems, crops, orchards, gardens and livestock. It also combines integrated watershed management emphasizing environmental accountability. Our efforts will be targeted at rural areas and populations which are poor and extremely poor. The Foundation and its partners will make a concerted effort to take into account cultural, gender, governance, and ecosystem aspects of the different geographic areas where we will operate.

We recognize that our resources are limited as we address issues of this magnitude. Therefore, it is important to have effective partnerships and leverage our resources to achieve the largest benefit from our participation.



BACKGROUND

POVERTY AND SOCIAL INEQUITY

The drivers behind poverty and social inequity are population growth, political and power imbalances, corruption, conflict, unequal distribution of wealth and resources, as well as natural disasters (more than 97 percent of the victims of natural disasters live in developing countries).¹ Currently, six billion people live on our planet. This number is expected to grow at a rate of 53-76 million people per year², with a majority of the increased population living in developing countries in the tropical belt (Figure 1).³

At present, over one billion people live in poverty⁴ and 13 percent of the world cannot access enough food.⁵ The countries with the highest proportion of undernourished people are in Africa (Horn of Africa, central Africa and central-southern Africa).⁶ About 70 percent of the people who live on less than \$1 a day live in rural areas in developing countries.⁷ Over 320 million of these people live in Africa.⁸ In Sub-Saharan Africa, the amount of people living in poverty increased by 29 percent, or by 50 million people, from 1993 to 2001.⁹

There are estimated to be 30 million environmental refugees in the world¹⁰ who have been displaced from their lands by natural resource scarcity, deforestation, environmental degradation, and overpopulation. It is estimated that this number may reach 150 million by 2050.¹¹ Over 17 million refugees worldwide have fled wars and persecution.¹² These people cannot return to their homes and in many cases, are living in areas only marginally suitable for human habitation. They are among the most vulnerable of the world's poor.

Poverty is multi-faceted, combining a range of factors which include lack of power and choice. Poverty can be defined as monetary poverty, based on individual or household consumption (as opposed to income), or non-monetary poverty, which can be defined as the following:

Health and nutrition poverty: the nutritional status of children as a measure of outcome, or the incidence of specific diseases (diarrhea, malaria, respiratory ailments) or life expectancy of different groups within the population.

Education poverty: the level of literacy as a defining characteristic, and some level of literacy established as the threshold for the "poverty line."

Poverty also needs to be seen in relation to those who are affluent. Many of the problems poor people face are the consequence of decisions and actions by more powerful groups, such as displacement from and dispossession of land, diversion of water resources from basic needs for private purposes, and loss of access to key resources such as forests and grazing lands.

Poverty leads to, but is not the only cause of, migration, conflict, and over-exploitation of natural resources. Lack of adequate resources, including access to water or adequate quantities of water has been a significant driver of urbanization. This process shifts the pressures from rural areas to urban areas and often creates a new set of problems.

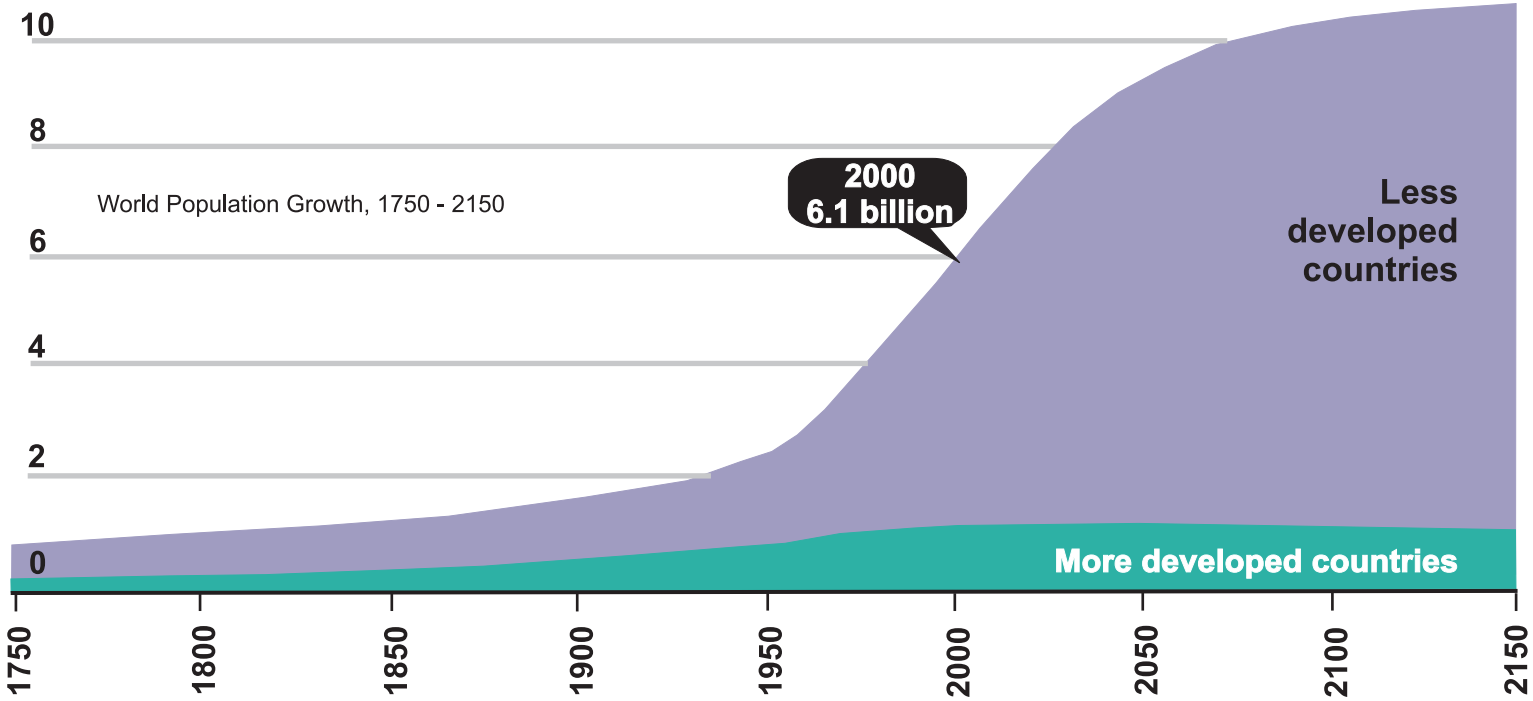
Urbanization is often driven by the hope for better jobs or the desire to have access to more amenities. One very subtle aspect of urbanization is the erosion of traditional values and practices which reinforce a higher degree of social responsibility.¹³ The challenge with urbanization is that many cities are not adequately prepared in terms of infrastructure and often there are not enough jobs for the huge influx of people or people are exploited for low wages. This migration to cities puts increased pressure on the available land and water resources around urban centers, as well as accelerating the spread of diseases such as HIV/AIDS.

Urbanization can also be seen as a consequence of economic growth and diversification. Urban areas offer opportunities for sale of agricultural crops, provide seasonal labor markets and access to better or expanded services. The challenge is to make the urbanization process better more able to provide shelter and access to other resources for the large number of poor urban dwellers. Urban and rural poverty are similar in nature, yet occur in different settings.

To understand poverty, it is important to understand the underlying factors. Poverty is often the result of one or more of the following:

- Lack of political power among poor people or inequitable governance
- Limited economic power, with minimal ability to address priority needs of the population
- Nominal institutional capacity to address the challenges of poverty
- Scarce livelihood opportunities and few economic alternatives for poor communities
- Little awareness of the problems, the solutions and the needs of the stakeholders
- Nonexistent policies or legislation to effectively address problems
- Poor health status of the population (often affected by disease or poor nutrition)
- Insufficient water, fuel, energy, land and food to meet people's basic needs
- Lack of focus by governments and large charitable organizations

POPULATION IN BILLIONS



(Figure 1) Source: United Nations *World Population Prospects, The 1998 Revision* and estimates by the Population Reference Bureau.

FIGURE 1

Any strategy aimed at delivering clean water must first recognize the underlying factors of poverty (Figure 2). Without building the proper capacity for the various stakeholders, ensuring equitable governance and protecting natural resources in a sustainable manner, the welfare of poor communities will not improve. Therefore, the Foundation's strategy will take into consideration the need to understand and strengthen the institutions and rules governing access to water and natural resources at local, national and regional levels.

The Foundation believes in an approach that emphasizes building long-term capacity and creating a voice for local people, establishing fair structures for governance, equitable distribution of resources, and the protection and management of the natural environment. This focus on integrated development is a key component of the Foundation's philosophy for its work at the international level.

WATER

Water covers about 70 percent of the earth's surface. Of this, only about 2.5 percent is fresh water and over 90 percent of this is frozen in the ice caps of Antarctica and Greenland.¹⁴ A certain amount of water is also frozen in soil moisture and in deep aquifers not readily accessible for human use. Less than one percent of the world's fresh water, which is water found in lakes, rivers, reservoirs, and underground aquifers shallow enough to be tapped economically, is available for direct human use.¹⁵

Water is a cross-cutting factor that affects every aspect of human well-being and prosperity. Clean water is crucial for social and economic development and is the cornerstone for a healthy environment. Without accessible, clean water, poor communities will remain poor. They will continue to be vulnerable to disease and suffer from food insecurity. As a result, poor communities often lack the time and energy needed for constructive application of their labor. This is particularly true for women and girls who bear the burden of domestic water delivery and management.

Water use and consumption is at the heart of long-term sustainable solutions for reducing poverty. It is estimated that 80 percent of the needs of poor populations are derived from biological resources from their immediate environment.¹⁶ It is also estimated that about 12 percent of all known animals live in earth's freshwater habitats.¹⁷ Therefore, taking into account the interdependency on natural resources of those living in poverty, the need for resource conservation will be critical in achieving long-term success. Poor people consume natural assets based on survival, not on conserving resources. Long term crises, such as drought, often force people to put their productive assets at risk when availability of short-term resources have been exhausted. Often, poor communities deplete natural resources because there is no alternative.



THE CONNECTION BETWEEN POVERTY, POPULATION MOVEMENTS, ENVIRONMENTAL DEGRADATION, AND CONFLICT

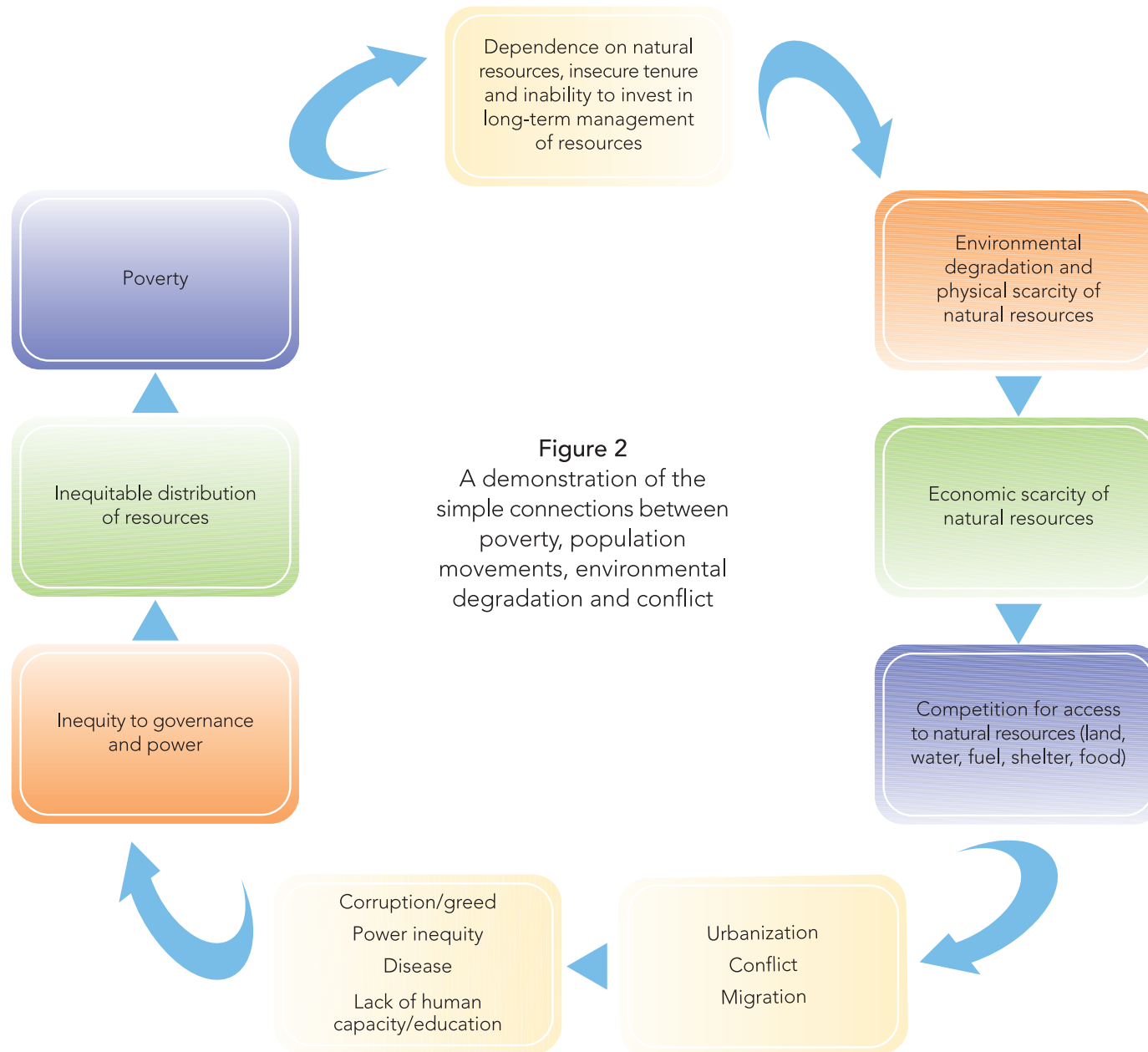


Figure 2
A demonstration of the simple connections between poverty, population movements, environmental degradation and conflict

PROBLEM STATEMENT

The lack of clean available water creates a hardship for a large portion of the world's population by having an impact on health, sanitation and food production. Water scarcity can be defined as physical scarcity or economic scarcity. Physical scarcity occurs when the lack of available water resources are insufficient to meet all demands, including minimum environmental flow requirements. This situation can be created artificially, due to over development of the hydraulic infrastructure, or over-commitment of water resources to certain users, leaving insufficient amounts for other groups. It can also occur naturally, from desertification, climate change or natural disasters. Physical water scarcity is a result of environmental degradation, pollution, declining groundwater from over-use, or the allocation of water resources in an inequitable or unsustainable manner.

Economic water scarcity is a result of insufficient investment in water infrastructure, inequitable governance, or low human capacity. More than 1 billion people live in areas that face economic water scarcity,¹⁸ 1.5 billion live in areas characterized by acute physical water scarcity,¹⁹ and 2.6 billion people live without access to improved sanitation facilities.²⁰ In general, over 1 billion people live without access to adequate or clean water for daily activities. Currently, 31 countries are facing water shortages; that number is expected to increase to 48 countries by 2025 and reach 55 countries by mid-century 2050.²¹ Approximately 85 percent of the people without enough water live in rural areas.²² About 900 million people live in river basins where the physical scarcity of water is absolute and the river basins will not likely recover.²³ Another 700 million live where water resources are fast approaching their limits.²⁴ Many of these figures will increase as water needs also increase for a growing global population. The World Bank estimates that by 2035, 3 billion people living in water-stressed areas will not have access to safe (clean) water.

From the current understanding of the effects and trends in climate change, Africa is the continent anticipated to suffer the greatest. This could lead to a five percent decline in food production and the dehydration of ground and surface water used for domestic, agricultural and environmental requirements.²⁵ Africa has 915 million inhabitants²⁶, and it is anticipated that up to 480 million of them will be facing water shortages in the near future.²⁷ Some of the main areas which must be addressed are the restoration of capacity, the conservation of water resources, and the establishment of effective and equitable water management policies and frameworks.

The amount of water for a person to survive is 2.5 to 3 liters per day for drinking and food, yet it takes 20,000 liters of water to produce 1 kg of coffee, 11,000 liters to produce 250 gm of hamburger meat and 7,000 liters to produce a cotton T-shirt.²⁸ One kg of tomatoes requires 190 liters of water, 1 kg of potatoes requires 198 liters of water and 1 kg of wheat requires 209 liters of water.²⁹ It takes twice as much water to produce rice than any other cereal crop, using more than 2,000 tons of water to grow one ton of rice, or 3,000 liters of water to produce one kg of rice.³⁰ The table below demonstrates the dramatic difference between human water consumption needs compared to the aforementioned requirements for products used in our daily lives.

BASIC SURVIVAL WATER NEEDS		
Survival needs: water intake (drinking and food)	2.5 – 3 liters per day	Depends on the climate and individual physiology
Basic hygiene practices	2-6 liters per day	Depends on social and cultural norms
Basic cooking needs	3-6 liters per day	Depends on food type, social and cultural norms
Total basic water needs	7.5 – 15 liters per day	

Source: Sphere, Humanitarian Charter and Minimum Standards in Disaster Response

The growing need for water and the fact that millions of people already live in water basins that are suffering from over-extraction (such as the Niger, Nile, Rwizi and other rivers) will lead to further suffering and conflict if measures are not taken in a timely manner. There are constant trade-offs in these situations. Competition between large scale irrigation projects, hydroelectric power, flood retreat uses for small scale agriculture, pastoral herders, fishing and river transportation can all have impact on the water resources required for basic human needs.

WATER AND CONFLICT

Water, poverty, and war are very closely intertwined. War can affect a country's water supply, but lack of (or competition over) water can also lead to conflict. There are currently innumerable rivers and aquifers that cross, or demark international boundaries. About 90 percent of countries in the world share their water resources with other countries.³¹ Europe and Africa have the greatest number of international river basins. In some areas, agreements currently exist to share water resources. For example, an agreement has been in force for the Nile River which originates in Ethiopia, Sudan, and Uganda, but ultimately flows into Egypt, where most of the water is utilized. Unfortunately, there are many areas where these agreements do not exist. In addition, as water demands increase, existing agreements could be challenged. Many such agreements are also ineffective, having been drawn up in isolation from the actual users or created to benefit a specific group.

PEOPLE WITH NO ACCESS TO IMPROVED WATER (MILLIONS)

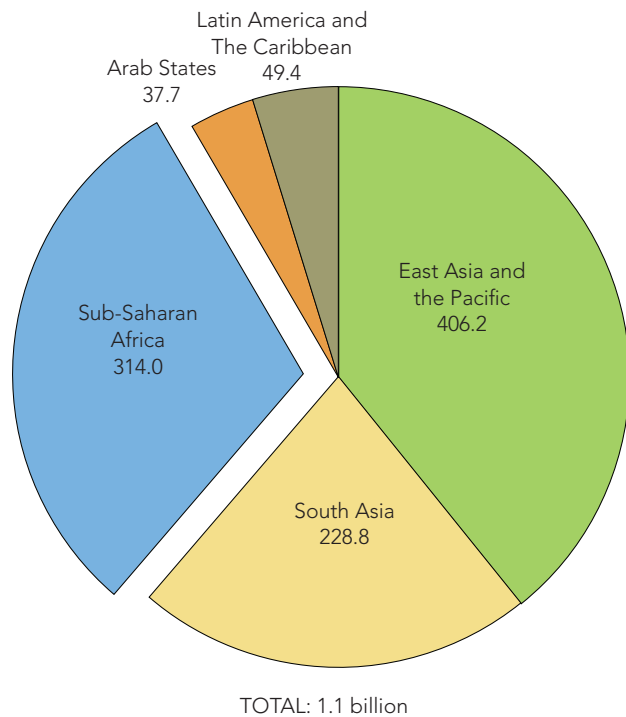
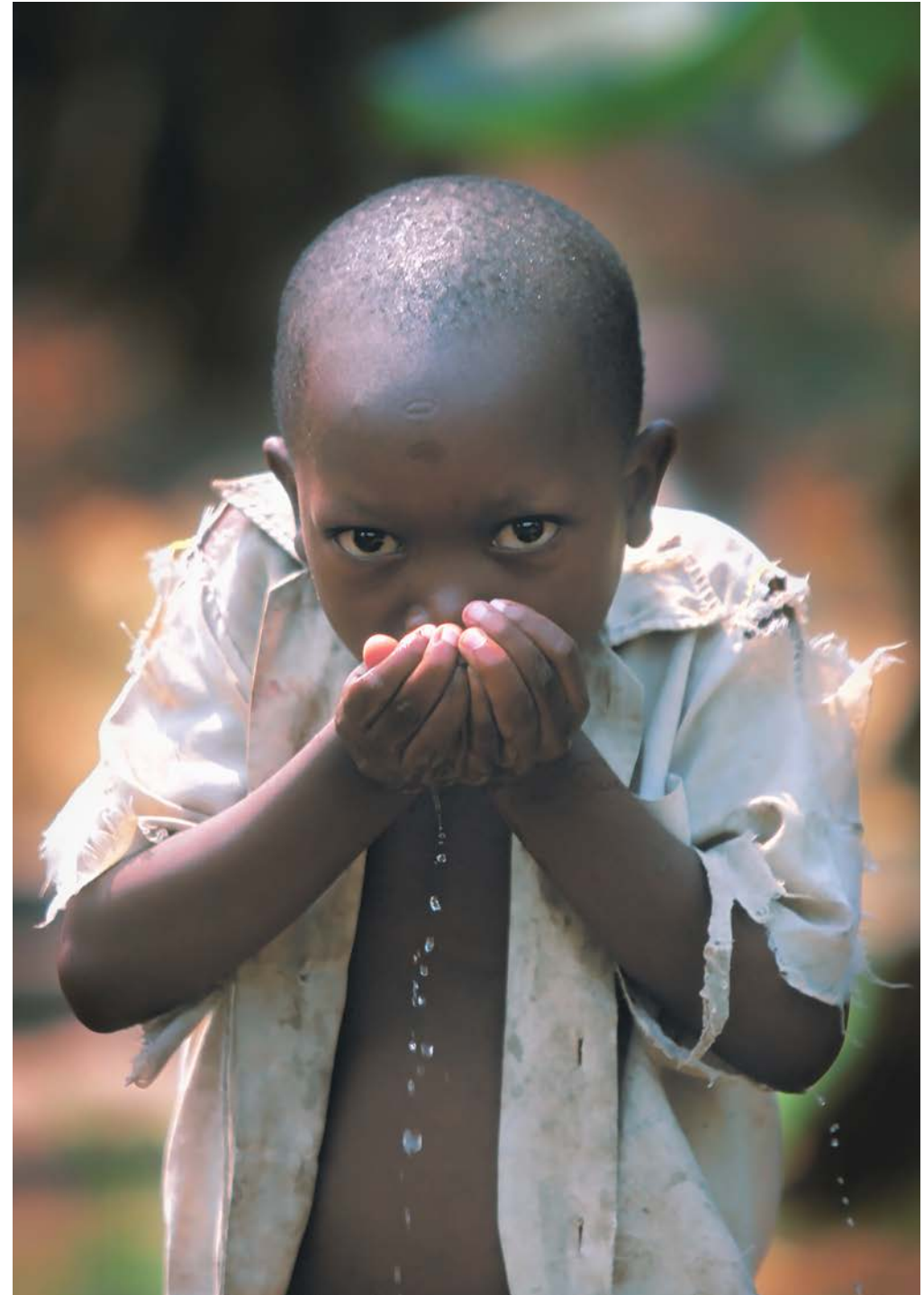


FIGURE 3

Source: Calculated based on UNICEF 2006A, 2004 Data



The United Nations estimates that 1.8 million children die every year from diarrhea caused by polluted water. This is almost 5,000 children every day. Water-borne disease is the third leading cause of death worldwide, killing more people than tuberculosis and malaria, making unsafe water the largest killer of children under the age of five.³² In developing countries, 80 percent of illnesses are water related.³³ It is estimated that by combining access to clean water and health care, while educating young women on hygiene, communities can experience as much as a 75 percent decline in child mortality.³⁴ Overall, water-related diseases kill over 20,000 people each day. Access to clean water is often an issue, forcing African women to walk an average of 3.7 miles daily to collect water (not guaranteed to be clean or safe). Often children, usually young girls, are required to help, thus preventing them from attending school. It is estimated that worldwide, 58 million school-aged girls are deprived of education, and in rural Africa, about 70 percent of girls do not finish primary school.³⁵ This process perpetuates a cycle of poverty.

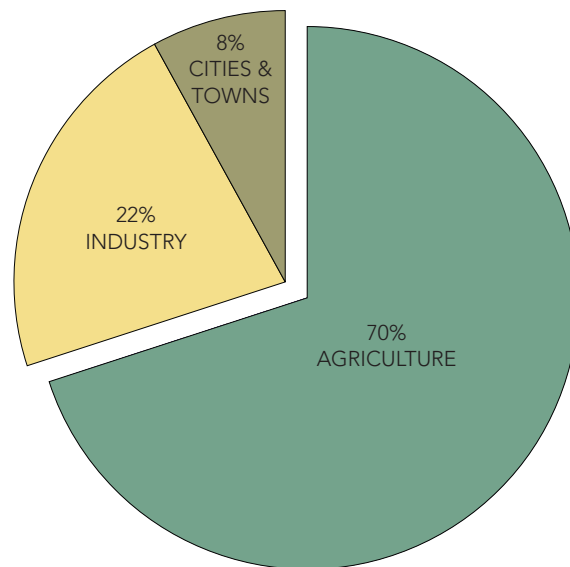
WATER USE AND WATER NEEDS

Currently, agriculture uses 70 percent of the world's water supply, industry uses 22 percent and municipalities eight percent (Figure 4)³². Irrigation consumes the largest amount of freshwater (Figure 4). Irrigation covers about 17 percent of cultivated land, yet accounts for nearly 40 percent of the world's food supply. As global population increases, some estimate that food production will need to increase by 67 percent over the next 25 years.³³

WORLDWIDE

- 17% of agricultural land is irrigated
- Irrigated land produces 40% of our food supply

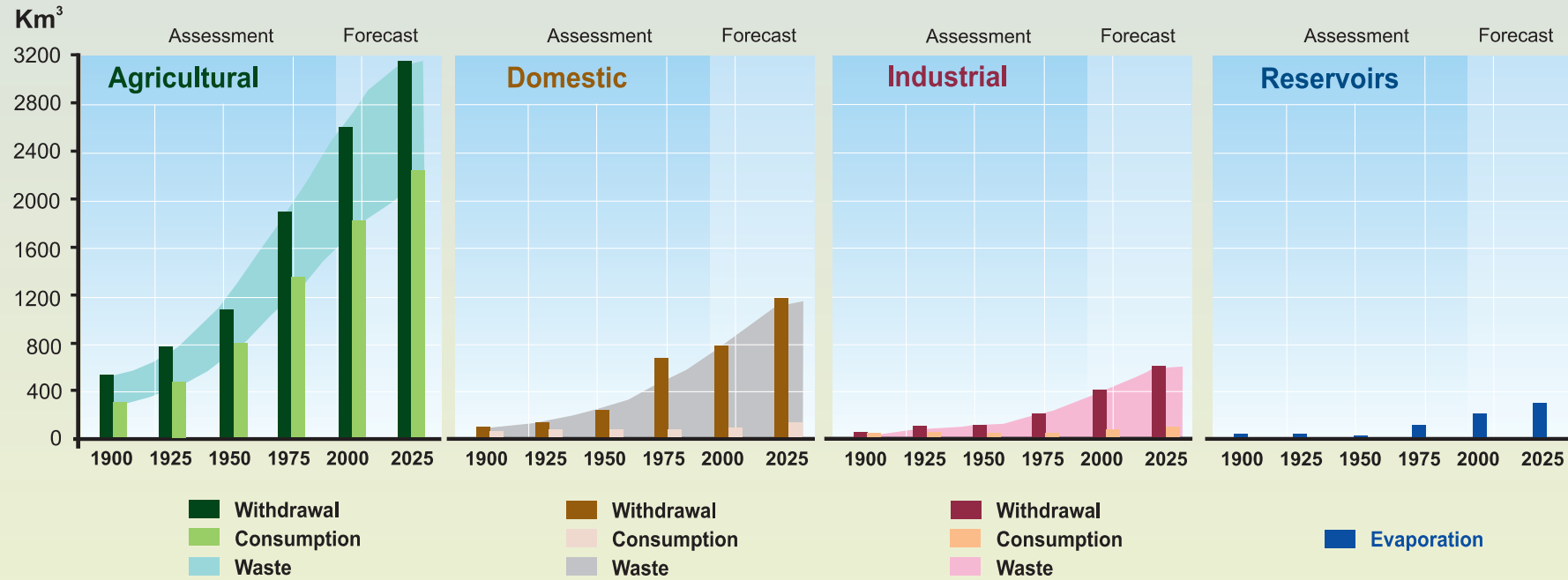
FIGURE 4



Source: World Water Institution 2004



EVOLUTION OF GLOBAL WATER USE WITHDRAWAL AND CONSUMPTION BY SECTOR



Note: Domestic water consumption in developed countries (500-800 litres per person per day) is about six times greater than in developing countries (60-150 litres per person per day).

PHILIPPE FEKACEWICZ
FEBRUARY 2002

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, ST. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999.

FIGURE 5

CONCLUSION

The water crisis will worsen over coming decades and it will have the greatest effect on the poor, vulnerable, and food-insecure populations. This can lead to conflict based on insufficient access to water, lack of governance, little or no stakeholder empowerment, and poorly-targeted investments. It is imperative that actions to address the water crisis are accelerated through new and existing approaches involving both increased financial resources and increased human capacity.

Worldwide, billions of dollars are invested annually on water infrastructure and management. Therefore, additional intervention will need to complement existing efforts and catalyze new approaches to achieve scale of action and to ensure impact. These initiatives must also focus on generating knowledge about the complexity and interrelation of water and other natural resource management challenges. This knowledge must be focused to strengthen the governance of water and natural resource management and to deliver results in a transparent and equitable manner.

The previous pages have outlined some of the key water-related problems of the world:

- Water scarcity, both current and future
- Diminishing natural resources, due to over-exploitation and population growth
- Degradation of the natural resource base
- Inequitable distribution of water amongst the various users and groups
- Inefficient use of water resources

The Foundation cannot solve all of these problems, but it can focus on some direct interventions which can contribute to solutions:

- Assist very poor communities in accessing their basic water needs
- Encourage other donors to focus additional resources on water needs
- Promote more equitable sharing and distribution of water resources
- Encourage more efficient use of water
- Promote respect for the environment and demonstrate ways in which water can be conserved and managed more wisely



THE HOWARD G. BUFFETT FOUNDATION WATER STRATEGY

The Foundation is focused on helping poor and vulnerable communities access safe, sustainable, and adequate quantities of water to meet their domestic, cultural, and livelihood needs within a framework of integrated water resource management that protects the natural environment and conserves essential resources.

GENERAL GUIDELINES

The HGBF will support integrated water resource management initiatives by focusing on the following priorities:

- Develop and apply new technology, innovative ideas, pilot projects, and successful replicable models
- Identify effective management and water conservation programs for conflict and post conflict areas
- Develop policies which address water use in transboundary and regional watershed environments
- Define the impact of government policy on water management
- Target investments beyond delivery of water to promote innovation, strengthening of institutions, raising awareness and the establishment of improved policies and legal frameworks
- Assess land ownership and land rights to identify changes for better water management
- Educate pastoral groups to strengthen their ability to participate and influence water decisions affecting their livelihoods
- Disseminate information on the success and failure of different water management approaches and delivery systems
- Fund initiatives which are strategic and complimentary to existing efforts
- Collect and consolidate information to help develop country level strategies
- Encourage the development of principles which drive transparent and accessible decisions
- Support initiatives which create a long-term, positive impact on communities

INTEGRATED WATER MANAGEMENT

Integrated water management is defined as an approach that will include, but not be limited to, the following elements: multiple water use delivery; support for livelihoods; environmental sustainability; consideration of health components; appropriate functioning of ecosystem services; equitable and transparent governance; promotion of peace-building and conflict mitigation; development of local capacity and structures which address the most vulnerable, marginalized populations.

GEOGRAPHIC PRIORITIES

The focus will be rural communities where water is scarce within the following global areas:

- Eastern Africa: Ethiopia, Kenya, Tanzania, and Uganda
- Western Sahel: Burkina Faso, Ghana, Mali, Niger, and Senegal
- Central America: El Salvador, Guatemala, Honduras, and Nicaragua

SOCIAL PRIORITIES

- People classified as poor, with emphasis on the extremely poor
- Pastoralist, nomadic, agricultural or displaced people
- Rural communities affected by polluted drinking water or by a lack of water for basic sanitary and hygienic functions
- Vulnerable and marginalized communities affected by conflict, socio-economic factors or political, ethnic or religious tensions

BENEFICIARIES

The Foundation will focus principally on women and youth, as well as groups that have been marginalized or isolated due to economic, political, or ethnic factors. The emphasis will be on groups and communities that do not benefit from existing water infrastructure development initiatives, or where effective water initiatives can be brought to scale. The Foundation will include traditional and governmental leaders, to establish more inclusive and equitable resource allocation and governance practices.

CRITERIA FOR SUCCESS

Initiatives must ensure that community members in need of clean water have responsibility, authority, ownership, access, and control of the water resources. Key elements include the following:

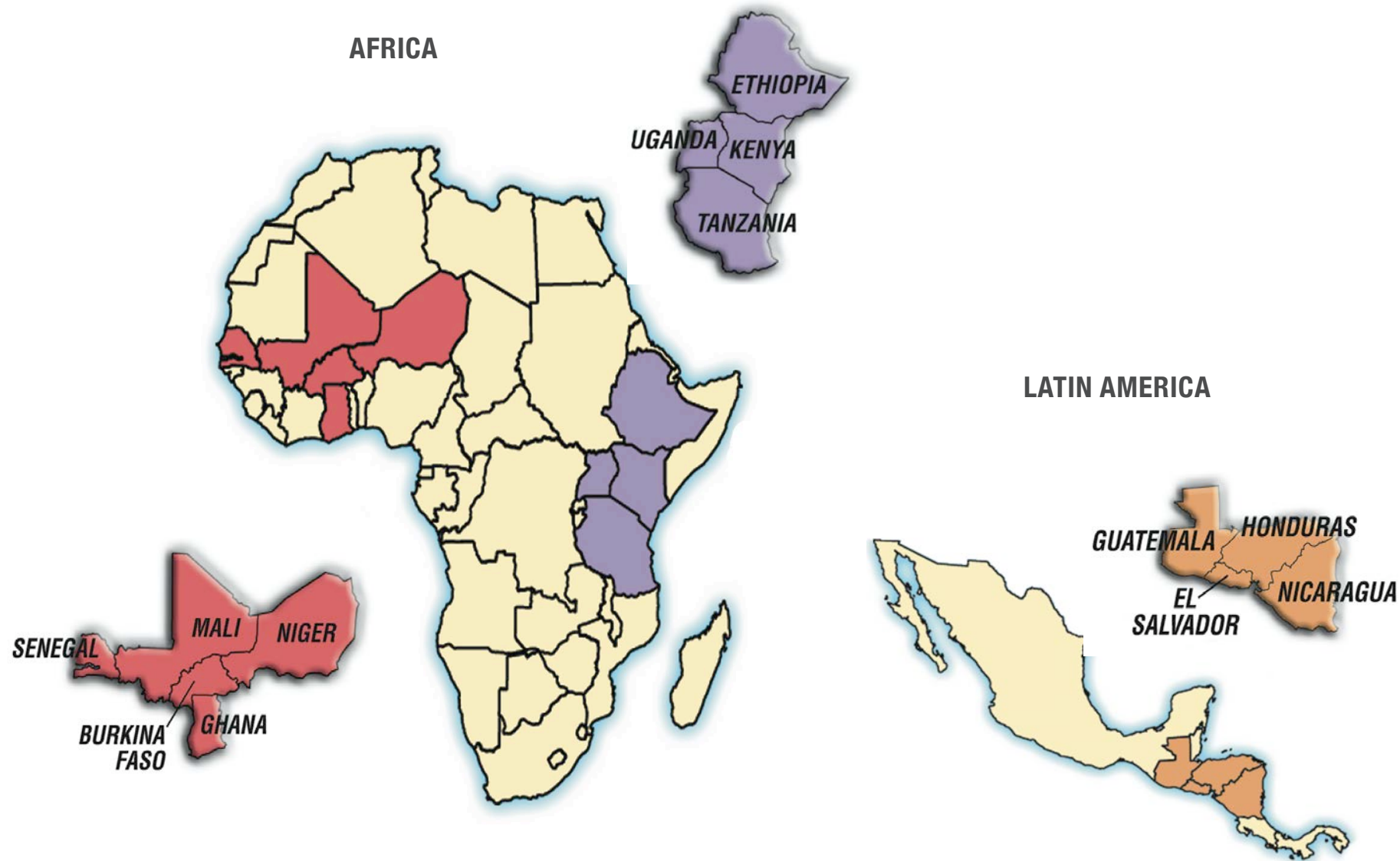
- Comprehensive integrated approach
- Long-term efforts
- Community involvement
- Emphasis on partnerships
- Sustainability
- Ownership by community
- Commonality of equipment
- Impact on upstream and downstream users
- Protection and effective management of the ecosystem services
- Transboundary and watershed approach
- Education/training on management, water rights, health and technologies



FOUR CRITICAL COMPONENTS OF WATER INITIATIVES

1. Community mobilization: organization; empowerment; governance; leadership; capacity building; equality and social justice; land tenure; and water rights
2. Service provision: domestic and productive infrastructure; point of source and point of use; storage and transport; sanitation and hygiene; disease prevention; water technology related to the quality and quantity of water; financing mechanisms; economies of service; and maintenance
3. Communication, information and capacity development: health and disease prevention (related to water); sanitation and hygiene; seasonality of water availability; legal issues; behavior modification; and efficient use of water for production.
4. Social, cultural and environmental factors: domestic animals and wildlife; customary rights; land ownership; traditional and commercial uses; upstream and downstream users; conservation of resources; drought cycle management; sustainability; sedentary and nomadic groups.

PRIORITY COUNTRIES HGBF GLOBAL WATER INITIATIVE



Map: Courtesy of Scott Zillmer

INITIATIVES AS CATALYSTS

The Foundation will assess water initiatives on the basis of positive changes that are clearly articulated in the following areas:

- Impact: awareness and understanding; attitudes and knowledge; behaviors and skills; involvement of local groups and economic conditions
- Influence: collaborative partnerships; policies, regulations and standards; public and political commitment to water strategies
- Leverage: local community resources; public funding; private funding

The Foundation will support the most effective efforts that provide water to the most vulnerable and impoverished populations in the identified geographic areas. Initiatives must:

- Demonstrate the development of strong local capacity
- Foster analysis and learning
- Include strategies of a catalytic nature
- Involve and strengthen public and private partnerships
- Emphasize innovation
- Include the design and implementation of monitoring and evaluation programs
- Influence change in integrated water management programs
- Raise awareness
- Identify opportunities to scale up successful programs
- Improve quality of the water supply and sanitation in communities
- Emphasize protection and management of environmental services

The Foundation's strategy is to avoid duplication, encourage innovation, and provide support to existing programs which are effective and can be scaled up or replicated. The process will be driven by the expertise of our partners and results will be measured against pre-established benchmarks.



THE HOWARD G. BUFFETT FOUNDATION GLOBAL WATER INITIATIVE

The Howard G. Buffett Foundation Global Water Initiative (GWI) will address the challenge of providing long-term access to clean water and sanitation, as well as protection and management of ecosystem services and watersheds, for the poorest and most vulnerable people dependent on those services. Water provision will take place in the context of securing the resource base and developing new or improved approaches to water management and will form part of a larger framework of addressing poverty and inequalities that particularly affect the poorest populations. This means combining a practical focus on water and sanitation delivery with investments targeted at strengthening institutions, raising awareness and developing effective policies. The link with the long-term processes of policy change, building political constituencies and leveraging larger scale change in the water sector will build the foundation for a more sustainable approach to water integrated with poverty alleviation and conflict avoidance and resolution.

Recent reports indicate that the priorities for addressing the water crisis must encompass the following:

1. Water and poverty: integrating the need for sufficient water which is clean and safe for drinking, cooking and hygiene, and which addresses sanitation and health priorities in addition to consumption. It must also address the needs of livestock, food crops, and housing
2. Water and the environment: focus on conserving existing water sources, restoring degraded water basins, maintaining fresh water ecosystems, utilizing groundwater and rainfall, as well as, surface water (blue water) resources, and finally, utilizing water more efficiently
3. Water and governance: recognizing and addressing the interdependence of water issues so that all members of the communities have a voice and the ability to access adequate safe water as a basic human right. Issues of governance, building water constituencies and integrating local, national, and international priorities must be included. These priorities must be achieved through transparent and equitable processes

The Foundation is supporting a consortium of partners to address these priorities in three geographic clusters. The first phase of the GWI will be to conduct a thorough regional analysis of the broader development context in the three clusters with links to the specific situation around water supply, sanitation, watershed management and water resources governance.

The regional analysis will provide baselines on issues such as (sub) national water supply and sanitation coverage, water quality, water resources abstraction, water governance and management arrangements, obstacles and opportunities for progress, and recent and planned water related interventions by governmental and non-governmental agencies.

The regional analysis will enable the development of country and regional strategies to address the priority needs, focusing particularly on vulnerable communities and consideration of fragile ecosystems. Developing these strategies will enable the GWI to target its work in a manner complimentary to current and ongoing activities. The interventions need to be based on a sound analysis of current conditions and trends.

In the second phase of the GWI, the programs designed at country and regional levels will address the following objectives:

1. Empower local communities to govern and manage their water resources
2. Establish appropriate and sustainable water delivery and sanitation systems
3. Strengthen understanding and sustainable management of water resources through environmental protection and conservation of water resources and ecosystem services
4. Address transboundary issues in water basin management
5. Strengthen integrated water resource management policy and legislation with respect to tenure of land and water resources
6. Build capacity and understanding among relevant authorities to strengthen inclusive, participatory and accountable decision making
7. Improve the dissemination of information on the success and failures of different water interventions
8. Increase the scale of interventions to provide access to water and water-related benefits to all populations within target area benchmarks

These activities will increase access to potable water through improvements in new and existing water points, small-scale rain fed irrigation for agriculture, rainwater management and conservation, and community mobilization and training. These will be complemented by regional hydrological and water basin assessments and natural resource management programs with an emphasis on conservation of the natural ecosystem and its watershed capacity.

CONCLUSION

The Foundation has set an ambitious goal to bring together a number of parties involved in water related issues to form a more coordinated and comprehensive approach to addressing water needs on a global basis. The three geographic clusters combine a number of challenges which should provide the opportunity for cross knowledge to be applied and tested to help determine the most successful techniques and priorities.

We realize our financial resources will not allow us to fund every aspect of a program of this magnitude. However, the Foundation will strive to include local NGOs, consider pilot projects, encourage innovation, fund both large and small initiatives, and work towards establishing systems that encourage sustainable water management. This will require the Foundation to look beyond simply providing water delivery systems. It will require a comprehensive approach that must attempt to piece together a variety of components which will vary based on geography, cultures, traditions, governments, and resources. We believe that with a long-term approach and the support of our partners we can have a measurable positive impact by assisting a large number of people facing the need for access to clean water and water for productive uses such as livestock and agriculture.

The GWI will work towards documenting and monitoring the impact of its work across the different countries and regions and analyze the results in order to improve and further the state of knowledge of successful (and unsuccessful) applied and practical integrated water resource management approaches.

GLOBAL WATER INITIATIVE FOUNDING PARTNERS:

Action Against Hunger

CARE

Catholic Relief Services

The World Conservation Union (IUCN)

International Institute for Environment and Development (IIED)

Oxfam America

SOS Sahel International UK



ENDNOTES

- 1 [Global Water Partnership, Catalyzing Change: A Handbook for developing integrated water resources management \(IWRM\) and water efficiency strategies.](#)
- 2 [UN World Water Development Report, 2006.](#)
- 3 [UN Report, 2006.](#)
- 4 [UN Report, 2006.](#)
- 5 [UN Report, 2006.](#)
- 6 [UN Report, 2006.](#)
- 7 Insights from the Comprehensive Assessment of Water Management in Agriculture, Stockholm World Water Week, 2006.
- 8 Insights, Stockholm World Water Week, 2006.
- 9 Bill and Melinda Gates Foundation.
- 10 World Watch Institute, 2005.
- 11 World Watch Institute, 2005.
- 12 [UN World Report, 2006.](#)
- 13 United Nations World Food Program.
- 14 Intercommunity Ecological Council LCWR.
- 15 Integrated Regional Information Network (IRIN), 2006.
- 16 [Wild Places](#), Peter Borchort.
- 17 Nature Conservancy.
- 18 Integrated Regional Information Network (IRIN), 2006.
- 19 Insights, Stockholm World Water Week, 2006.
- 20 United Nations Development Programme, 2006.
- 21 [Water: A Shared Responsibility](#), United Nations World Water Development Report 2, 2006.
- 22 Insights, Stockholm World Water Week, 2006.
- 23 Insights, Stockholm World Water Week, 2006.
- 24 Insights, Stockholm World Water Week, 2006.
- 25 United Nations Development Programme, 2006.
- 26 Intercommunity Ecological Council LCWR.
- 27 World Vision.
- 28 [Educating Girls](#), New York Times, June 25, 2005.
- 29 Stern Review: The Economics of Climate Change, October 2006.
- 30 Insights, Stockholm World Water Week, 2006.
- 31 United Nations Development Programme, 2006.
- 32 World Water Institute, 2004.
- 33 Integrated Regional Information Network (IRIN), 2006.
- 34 Integrated Regional Information Network (IRIN), 2006.
- 35 [Why Does the Earth Love A Plant-Based Diet?](#), S. Hall, Canada Earth Saver, April/May 1977.
- 36 I. Serageldin, Chairman of CGIAR and Vice President, World Bank, Special Programs, May 17, 1999.
- 37 Insights, Stockholm World Water Week, 2006.

THE HOWARD G.
BUFFETT

© The Howard G. Buffett Foundation 2007
Photographs courtesy of Howard G. Buffett