

WATER AS A FACTOR IN SOCIO-ECONOMIC DEVELOPMENT: FUTURE TRENDS

Carina van Rooyen

*Department of Anthropology and Development Studies, University of Johannesburg,
South Africa*

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Summary

Without water there can be no life and no development. Although water is necessary for sustainable development, by itself it is not sufficient to achieve development. This means that it is only one of many factors in the process of socio-economic development. Broadly water fulfils an economic, social, cultural, political and ecological role in improving people's quality of life. But millions of people do not even have access to clean drinking water and sanitation, never mind using water for development. An ever-increasing population, rapid urbanization and industrialization, the unsustainable type of development path followed and widespread poverties and growing inequalities, will only make this situation worse in the future. Proposals on how to address these challenges and ensure access to water for all, has to do with viewing water as an economic commodity or enforcing it as a human right of all. But underlying all these challenges and views are the reality of water being a source of power and wealth.

1. Introduction

With air and land, water is essential in any life support system. All human life depends

on water; without adequate and clean water there can be no health, welfare or peace. Water also plays a key role in sustaining livelihoods and ensuring social and economic development. But blue gold, as some refer to water, is a finite and vulnerable resource. Only three percent of global water resources are fresh water, with the most of this water locked away in the polar ice caps of Antarctica and Greenland, leaving as little as 0.3 percent of fresh water in rivers, lakes and ground water available for human use. The availability of fresh water is also unevenly spread across the earth, leading to water shortages and scarcity in some areas and for some people. The World Health Organization estimated in 2000 that 1.1 billion people (out of six billion, meaning 18 percent of the world's population) lacked access to safe drinking water and 2.4 billion people (40 percent of the world's population) lived without adequate sanitation. This situation leads to between 15 and 30 thousand people dieing daily from water-related diseases; in 2004 diarrhea caused more deaths than HIV/Aids, according to the World Health Organization.

With global water consumption doubling every twenty years, water will become even more scare and vulnerable. Add to this the impact of water pollution, climate change, increased food production and industrialization, fresh water, which is needed for life and development, is under threat. Water is therefore a growing issue in international development, with water scarcity being seen as a limiting factor in socio-economic development. (It should be remembered that water scarcity is not only about physical scarcity of water, but also – and more so in many cases – about water management and consumption/distribution issues, as will be discussed below) A balance urgently needs to be found between water conservation and its use for socio-economic development. Sustainable development for all can only be reached if that development is based on the sustainable use of natural resources, especially water.

This chapter considers water as a critical factor in socio-economic development. It is obvious that water is central in fulfilling the most fundamental human need, thirst. Furthermore, water is used in the production of food and for other domestic purposes like cooking and cleaning. It is also needed in the manufacturing process and it supports ecosystems that ensure life on earth. The paper starts with these and other historical roles of water in development in Section Two. But although water is necessary for socio-economic development, by itself it is not sufficient to bring about development. The role that water can play in socio-economic development depends on who has access to water and who controls water. The so-called water crisis has much more to do with the global management and distribution of water than with having too little water available globally. Power and politics are therefore important in this discussion, together with issues of sustainable development, equity, justice and efficiency. This will become clear in exploring the trends in water uses (in Section Three) and the challenges facing water in development (in Section Four). This chapter will also highlight in the last section the different opinions on how these challenges should be faced in the last. The debates can broadly be summarized as those viewing water as an economic good that should be priced accordingly, and those arguing that water is a human right and a public good. This often-dichotomous debate between efficiency and equity, social justice and environmental justice, is at the heart of the future role of water in the development of all.

2. Historical Role of Water in Development

How humans have used water over time for development has not changed much. The most basic human use of water is for drinking purposes. Humans need a regular intake of water to ensure metabolic processes that sustain life. With water being distributed unevenly over the face of the earth, human settlement had historically evolved close to water resources like rivers and lakes. The added benefit was that such water resources could also be used for transport. These surface water resources, together with rainfall, made household food production possible. With water seen as a free “gift” that could be used freely, people started to store water in, for example dams to make more irrigation possible. In drier areas they dug holes to find ground water and extracted this for domestic use and food production. But water also played a key role in making the Industrial Revolution possible. Over time an ever-growing human population and the spread of industrialization lead to increased demands for water – these two issues are still relevant as future challenges facing water and development (see Section Four for future challenges to the use of water).

An indication of the role of water in economic development is that many of the poorest countries in the world are also experiencing water shortages and scarcity. But although water is needed for economic development, water by itself is not sufficient to ensure development. Water is just one of many factors necessary in the process of development. As will be argued later, water must then be seen in a broader context and must be managed in an integrated way.

The general uses of water are mainly for human consumption and sanitation, food production, industrialization, energy, transportation and environmental conservation. Household or domestic uses of water are for cooking food, bathing and hygiene, and use in the construction of shelter. But although crucial, water consumption and sanitation only make up ten per cent of the global water use. Irrigation is the largest use of water. It represents about 70 percent of global water use. Many therefore refer to the abuse of water by irrigated agriculture. Such intensive irrigation is needed in modern farming processes, mainly practiced by the rich farmers of the world. Although irrigated water can be reused, much of it is contaminated with nutrients and chemicals from pesticides and herbicides. This contributes to the building up of salt concentrations that can make the soil infertile. Water is also needed for the production of foods like livestock and fisheries.

Industries are responsible for 20 percent of global water use. During the production process industry needs water for heating, cooling, cleaning, transporting, etc. Because of its unique production process, some industries require more water than others. It is especially the high-tech industries that use water intensively. Although only ten percent of the water that is withdrawn by industry is consumed, the rest is returned as wastewater that is many times so degraded that it must be clean-up before reuse.

Large dams are also useful in providing hydro-electricity in addition to be helpful for water storage (hydropower accounts for 20 percent of electricity production worldwide). The number of large dams in the world, with a height of over 15 meters, have grown from 5 000 in 1950 to over 39 000 in 2003. These dams are used for

irrigation, hydropower, drinking water, flood control, recreation and tourism. In spite of these positives for development, dams have very negative impacts on ecosystems, people and development. The well-known cases are the Three Gorges dam in China, which will displace 1.9 million people, and the Narmada Valley dams in India. Criticisms against large dams by NGOs and groups such as Greenpeace and International Rivers Network have led the World Bank and the World Conservation Union to jointly establish the World Commission on Dams that has set guidelines on the building of dams for its impact on the social, economic and natural environment. The silting up of dams over time is another concern.

As mentioned before, without water there can be no health. There are many diseases closely related to the quantity and quality of water, like diarrhea, cholera and dysentery. Every year about five million people, mostly children, die from such water-borne diseases, and about half of the population of the developing countries suffers from water-borne diseases.

But the role of water is beyond simply providing water for healthy living. Except for these general, and mostly economic, uses of water, water has important social, cultural and spiritual roles in the life of communities. If people are healthy, they can be more productive and do better at school. Access to water improves livelihood security, socio-economic status, gender empowerment, environmental conditions and community management. Socio-economic status is improved because of increased self-esteem and increased household income levels from, for example food production. Increased school attendance can be achieved through timesaving because of easier access to water. The gender division of labor around water is that women must fetch water, on which they spend much of their time. (In Africa and Asia women have to walk on average six kilometers to collect water.) Women are also responsible for food production, which requires water. But in spite of this, they do not have much decision-making power in the household and the community, also around water. This is because water use is related to power relations. Water supply that takes into account the experiences, needs and interests of women, will go a long way in gender empowerment. A reduction in stress levels, better family and community relations and increased ability to observe religious rites and customs are also benefits of access to water. It is unfortunate that these cultural and spiritual roles of water in development are under-recognized. Since time immemorial water has also fulfilled a function as one of the key social regulators. In any communities, life is organized around water. This multi-faceted nature of water must be acknowledged.

Key aspects to these roles of water in development are the access and affordability of water, which relates closely to the quantity and quality of water. Also, the different levels of development between different countries and different areas within countries mean that the demand for and role of water will be different. This will be expanded in the analysis of the current context of water use, demand and scarcity.

3. Current Context

Lack of access to clean water and sanitation are mostly experienced in Africa and Asia, which are also the two poorest regions in the world, while in rich countries the issues

are around water quality due to water pollution. In poor countries existing water infrastructure do not reach everyone; many water leakage occur in the system; and water and sewerage treatment are inadequate. Such lack of water services includes sufficient quantity and quality of water, and reliability of water services. And despite many efforts to the contrary, the total population in Africa without access to water has increased by 15 million, in the 1990s. And in 2006 the United Nations Development Program estimated that one out of five Africans lacked access to clean water – see Figure for access to water in the regions. As will become clear, although ecological, temporal, and human factors play their roles, such water scarcity is strongly related to political factors. This has lead some to distinguish between real water scarcity related to ecological, temporal and human factors, and socially constructed water scarcity, which is the result of overuse, inequalities and power relations.

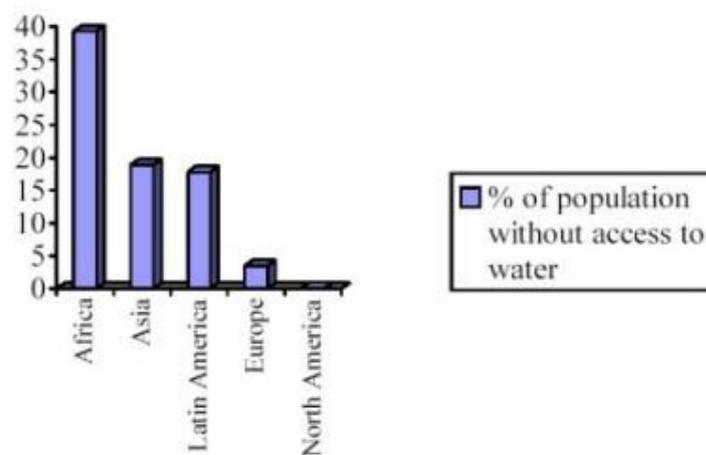


Figure 1. Lack of access to water supply and sanitation by world regions

An ecological factor that influences water availability is the hydrological cycle of evaporation, condensation and precipitation leading to water taking on variable forms (solid, gas or fluid). Global climate change, droughts, desertification, deforestation and soil erosion are other ecological factors that make water shortages worse. Related to the ecological dimension is water scarcity that also has a temporal or cyclical dimension, leading to water uncertainty in many areas. The human factor in water scarcity include the effects of sedimentation, siltation and water pollution by chemicals and other waste on the quality of water available.

Water can be re-used and can be used more effectively, which mean more water availability than simply the total quantity of current water sources. Local water harvesting systems that collect, store and use rainwater runoff are attempts at using water effectively. Water use can also be improved by making rich people aware of their waste of using water fit for human consumption, for flushing, watering garden or washing cars. This touched on the political factors influencing water scarcity.

The political factors influencing water scarcity have mainly to do with power relations on different levels that lead to the over-consumption of water by some, while others lack water. Water is a source of power and wealth; control over it is many times used as

bargaining tools, leading to increased inequalities between gender, class, race, etc. Such inequalities will be discussed in great detail in Section Four, which addresses the challenges facing water and development.

A series of international events have taken place since the 1970s to try to do something about the real as well as socially constructed scarcity of water and its impact on development. These include:

- In March 1977 the United Nations (UN) Water Conference in Argentina produced the Mar del Plata Action Plan which led to the proclamation by the UN General Assembly of 1981-1990 as the International Drinking Water Supply and Sanitation Decade. The goal of this decade was full access to safe water and sanitation for all by 1990.
- The Global Consultation on Safe Water and Sanitation for the 1990s was held in New Delhi in 1990. The New Delhi Statement reaffirmed the goal of the International Decade of water and sanitation for all but moved the target date to 2000. To achieve this it foresaw the role of government changing from a provider to becoming a facilitator.
- In January 1992 the International Conference on Water and the Environment led to the Dublin Statement on water and sustainable development. The four guiding principles of the Dublin Statement were fresh water as a finite and vulnerable resource, essential to life, development and the environment; a participatory approach to water development and management; women as central in water provision; and the economic value of water. This Statement introduced for the first time the idea of water as an economic commodity, meaning water should be priced.
- In June 1992 the Earth Summit took place in Rio de Janeiro. The Dublin Statement provided the basis for Chapter 18 of Agenda 21 that looked at the Protection of the quality and supply of fresh water resources. In this much was made of integrated approaches to the development, management and use of water resources.
- In December 1992 the General Assembly proclaimed 22 March of each year as World Water Day.
- In 1994 the Ministerial Conference on Drinking Water and Environmental Sanitation was held in Noordwijk, the Netherlands.
- The 1996 International Forum of Partner Cities for integrated water management was held in Montreal.
- The First World Water Forum – organized by the World Water Council formed in 1996 as a think-tank of about 175 members from government bodies, international institutions and the private sector – was held in Marrakesh in March 1997.
- The United Nations General Assembly 19th Special Session (UNGASS) in June 1997 focused on the activities of the Commission for Sustainable Development; during this water was one of the major issues discussed.
- The 9th World Water Congress on “Water resources outlook for the 21st century: Conflicts and opportunities” was held in 1997 in Montreal.
- Public Service International (a confederation of hundreds of public service trade unions from across the world) adopted the Water Services Code in November

1997. This Code is based on the view of water as a human right.
- The International Conference on Water and Sustainable Development took place in Paris in March 1998. This conference continued to reinforce the market-orientated approach to water use.
 - The UN Commission on Sustainable Development, created after the Rio Conference, increasing give priority to water issues. This continued at its sixth session in April 1998.
 - In 1999 a draft of the World Water Vision (WWV) was released. Contributions to the WWV came mainly from the World Commission on Water for the 21st century (created by the World Water Council in 1998 and composed of 21 eminent personalities), the Global Water Partnership, the World Bank and water transnational corporations (TNCs). Their support for the commodification of water (which will be shown in Section 5.1) was reflected in the WWV; the idea of water as a human right does not appear in the document.
 - Vision 21 of the Water Supply & Sanitation Collaborative Council aims to ensure water services to all within 25 years. It stresses the need for the participation of all and a holistic approach to water management.
 - The Second World Water Forum (SWWF) took place in March 2000 in The Hague. At this event the WWV was officially released.
 - In November 2000 the UN released the Millennium Declaration containing the Millennium Development Goals (MDGs). As part of the MDGs is the goal of halving by 2015 the percentage of people without sustainable access to safe drinking water, with 1990 as the reference year.
 - In December 2000 the International Water Conference ten years after the Dublin conference, was held in Bonn, Germany. The first draft of the World Water Development Report was produced for Bonn. It is focused on developing assessment methods.
 - In July 2001 the Blue Planet Conference took place in Vancouver to promote a global water revolution. It considered alternative ideas to the commodification and privatization to water.
 - The International Conference on Fresh Water took place in December 2001 with the aim of strengthening the objectives of Chapter 18 of Agenda 21 as preparation for discussions around fresh water at the World Summit on Sustainable Development (WSSD) in 2002 in Johannesburg.

The Johannesburg Declaration, adopted at the WSSD, added to the MDG for water the target to halve by 2015 the proportion of people who do not have access to basic sanitation.

- The UN Committee on Economic, Social and Cultural Rights – who monitors the implementation of the International Covenant on Economic, Social and Cultural Rights – in November 2002 agreed on General Comment 15. (General Comments are guidelines for the interpretation of specific aspects of the Covenant that are published by the Committee periodically.) General Comment 15 states that “The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.”
- The UN declared 2003 as the International Year of Freshwater.

- The Third World Water Forum was held in 2003 in Kyoto and the Fourth World Water Forum in Mexico City in 2006. The fifth one is planned for 2009 in Istanbul, Turkey. So far none of these forums have yet included in its declarations water as a human right. Although these forums are not official intergovernmental meetings, they are considered as the main platforms for global debates on water.
- Different to the World Water Forums, the United Nations Educational, Scientific and Cultural Organization in 2006 declared access to water as a fundamental human right. 2008 was declared the International Year of Sanitation by the UN.

From this series of events an evolution in thinking about water and development becomes apparent, which can be summarized in the following points:

- The decentralization of government functions is being stressed. The principle of subsidiary has been accepted (Dublin Statement and Chapter 18 of Agenda 21), referring to the devolution of the management of water resources to the lowest appropriate level. The role of government has also shifted from providing water to providing a legislative and regulatory framework, a so-called enabling environment (New Delhi Statement).
- The importance of the participation and the empowerment of local communities have also been acknowledged. This means those user communities such as water user associations and river associations should participate in water management. Especially the role of women in water management was acknowledged in both UNGASS and SWWF. However, there is a need to build capacity at a local level to manage water resources: education, training and skill development are part of this. But this does not mean that, for example, farmer-management irrigation systems and indigenous management systems should be overlooked. Local level institutions for water management should be based on local reality.
- The role of the private sector in the management of water has increased. This increased role is directly related to viewing water as an economic commodity (started with the Dublin Statement). This increased role can be seen in the growing private sector investment in the water sector in developing countries between 1990 and 1997 of around \$2 500 million. Currently about \$7 800 million is spent on water supply and sanitation worldwide, although the World Bank estimates that the global water market is worth about \$80 000 million. Because of private sector investment focusing on a “fair” return on investment, it has provided finances for water supply infrastructure in mainly urban areas. Especially in developing countries water services are also being privatized, with pressure for this being exerted on these countries by the World Bank and the International Monetary Fund (IMF). The growth of the private sector involvement in water services has especially been in water TNCs. Recently though water TNCs have been hesitant about investing in developing regions – due to a mixture of local resistance, operating difficulties and failure to realize ‘sufficient’ profit – and they have rather focused on expanding their operations in rich countries.
- The financial aspects of water provision are focused on cost-recovery policies or “economic pricing” for water services. This means that water users must pay for all the costs related to water systems, including capital expenditure, and costs of

operation and maintenance (O&M). The tendency is to acknowledge the need for equity measures to ensure access to “sufficient” water for all, but then to argue against the “burden” of subsidies that should not rest on the service providers. The central question, though, is whether cost-recovery can ensure the right to water of all, especially the poor. This will be discussed in Section 5.1.

- An integrated, holistic approach to water resource management is central to the sustainable use of water and to development. The Dublin Statement, Chapter 18 of Agenda 21 and the 1994 Ministerial Conference stressed this. An integrated approach means that economic, social and environmental factors should be considered in water management. But it also implies that surface and groundwater should be seen as a holistic whole that must be managed together, many times across state boundaries.

If this is how water and its role in development are currently viewed, what can we expect of the future?

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Biographical Sketch

Carina is a lecturer in Development Studies at the University of Johannesburg, South Africa. She is currently preparing a doctoral thesis for the School of Oriental and African Studies, University of London on the political economy of bulk water supply in South Africa. She was awarded a Commonwealth Scholarship for this research. Her research interests are nature-society relations, including urban political ecology, natural resources management and water governance. She is also committed to interdisciplinary critical research, and critical scholarly activism.