

Review

Adequate water supply as a rural poverty reduction strategy in developing countries: A review of the literature

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Accepted 16 September, 2012

Water is fundamental to health, survival and livelihoods, hence the international concern that it attracts. Globally, it is seen as an economic, social, cultural and environmental good, and to a large extent, not only a basic need but a human right. The aim of this paper is therefore to give an exposition of the role of water as a poverty reduction strategy in a rural context. This gives credence to the concept of water-related poverty that arises when water resources constrain or impact upon people's livelihoods options or assets. A livelihoods approach to water allows us to consider the ways in which water affects people's abilities to pursue overall sustainable livelihoods. To ensure that rural poverty reduction is realized, issues of multiple uses, sources, technologies and users of water are addressed. It is therefore recommended that access to adequate water supply, within the sustainable livelihoods framework, should be pursued if rural poverty is to be sustainably reduced.

KEY WORDS: Water, sustainable livelihoods, poverty, livelihoods assets, human right, poverty reduction

INTRODUCTION

Throughout history, water has always been considered to be an essential requirement for human survival. This is clearly shown as early civilization developed along major perennial waters such as Nile, Tigris- Euphrates and the Indus. Water is life for people and for the plant. It is essential to the well-being of humankind and a basic requirement for the healthy functioning of all the earth's ecosystems. According to World Bank (2004), water is a catalytic entry point for its efforts to help developing countries to fight poverty, safeguard human health, reduce child mortality, and both utilize and protect their natural resources.

Clean water is essential for human health and survival. The combination of safe drinking water, adequate sanitation and hygienic practices like washing hand is recognized as a precondition for human health and for overall reduction in morbidity and mortality rates,

(Mcintosh 2003, UNHS 2003, ADB 2004, World Bank 2004, Eric *et al* 2009). Agreeing with this, the then United Nations secretary General, Kofi Anan, declared during the Millennium Declaration, that.

'No single measure would do more to reduce disease and save lives in the developing world than bringing safe water and adequate sanitation'.

WHO (1992) also asserts that more than five million deaths worldwide are caused each year by Water-borne diseases and water-related illnesses, with an additional one million caused by malaria. Adequate supply of clean water for drinking and other household use, as well as for agriculture and commerce is essential to fighting poverty. Water is an important factor of production, crucial to social and economic development and poverty reduction. According to DFID (2002) and Rakodi (2002), it is central to the livelihoods system of the rural poor.

The state of the environment and poverty has intertwined relationships linking water resources as the foundation of people's wealth. There is a vicious cycle of poverty linked to the failure to have access to safe and

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affordable water supply, as clean and safe water is clearly a key attribute to quality life and social well-being.

Water is both a private and public good, to which access, according to Jones (2002), is a factor, as proximity to facilities means very little when access is denied. For DFID (1998), adequate provision of water supply is reasonable access with at least 20 litres per person per day at 200m or less from home. Increasing access to water is an infrastructural issue that brings about benefits in large-scale water supply for sanitation, production, commerce, irrigation and hydropower.

Considering the relationship between rural people living in poverty and lack water, three dimensions of poverty stand out. These are health, livelihoods and vulnerability. These dimensions address the state of the environment. That is why efforts that address adequate water supply also address environmental pollution, as water source points are inspected to examine water pollutants and environmental degradation agents.

All these aim at reducing drastically water-related environmental pollution levels. Also, central to both environmental protection and poverty reduction is empowering the rural poor with the assets, rights and entitlements they need to utilize their natural resources (like water sustainability) and reduce their vulnerability to environmental shocks, hazards and conflicts (UNDP 2002). Addressing the issue of impact of lack of access to water resources on gender, UNDP *et al* (2002) opine that women are most affected—they walk long distances to access water, often of poor quality. To a large extent, they observe that poor water and sanitation services impact severally on poor women's physical security, opportunities, income generating capacity, nutritional status, time, and overall health and well-being. This paper is therefore poised to give an expository review of the literature on water and x-ray the role of adequate water supply as a poverty reduction strategy in a rural context.

International Concern On Water

A number of international fora that address water issues have been held. For instance, the Dublin Conference on water and the environment in 1992 established the principle that water is an economic, social and environmental good. In addition, the Committee on Economic, Social and Cultural Right (CESCR) of the United Nations, in their General Comment No. 15 in Geneva in 2000, assert that water should be treated as a social and cultural good and not primarily as an economic good. This means that providing water users with clear economic incentives for effective water use is critical for guiding water use as allocation decision. The United Nations Development Programme (UNDP) focuses on

water governance, because of its overreaching goal in poverty reduction, and good water governance is a prime vehicle for ensuring that local and national government, as well as the international system as a whole, prioritize the needs of the poor in setting water policy and in designing water and sanitation services (UNDP 1998).

Also, at the UN Millennium Summit in 2000, 189 heads of states adopted the Millennium Development Goals (MDGs), which set clear numerical time-bound targets for making real progress by 2015, in tackling the most pressing issues developing countries face. Cutting in half the proportion of the world's population without access to clean drinking water and adequate sanitation is not only one of the 18 targets embedded in the MDGs, but also a critical factor for hunger, achieving universal primary education, promoting gender and women's empowerment, reducing child mortality, improving maternal health, combating major diseases and improving environmental sustainability.

At the Johannesburg World Summit for Sustainable Development (WSSD) in 2002, the overall MDGs were reaffirmed and additional targets related specifically to water and sanitation were added under the Johannesburg plan of implementation (UN 2003). It was recognized at the summit that water and sanitation are fundamental to poverty reduction and sustainable development.

The implication of these international concerns on water to the rural poor is to increase the proportion of the population's access to clean and safe water, improved sanitation and sewage facilities, reduce water-borne diseases and illness, and achieve sustainable livelihoods.

Water As A Human Right

The importance of water for satisfying a variety of human and ecosystem needs has been regularly recognized in numerous intergovernmental meetings at very high decision-making levels, starting with the United Nations conference on the Human Environment held in Stockholm in 1972. All these global conferences and their resulting declarations and action plans pointed out need for water for drinking (human and Livestock), food production, electricity generation, environmental conservation, and industrial development (UN 2002, WHO and UNICEF 2006, World Commission on Water for the 21st century 2000). The importance of access to clean water and sanitation was further emphasized during the UN water conference in Mar del Plata, Argentina in 1977, and in the Millennium Development Goals, and in the Johannesburg declaration of UN (UN 2002).

An in-depth analysis of the resolution and action plans of the various intergovernmental agencies indicate that

while they have consistently given high priority to achieving universal access to clean water, they vacillated regularly between the concepts of water as a basic need and water as a human right. In fact, it appears that these two concepts have often been used interchangeably, without a clear understanding of their differences and possible policy and financial implications. The situation changed somewhat when the Committee in Economic, Social and Cultural Rights (CESCR) that was established by the United Nations to oversee the implementation of the covenant on Economic, Social and Cultural Rights, presented a document (General comment No. 15) at its 29th session, in Geneva, during 11-29 November, 2002 (Biswas *et al* 2008). According to them, this Comment re-interpreted Articles 11 and 12 of the Covenant, and concluded that water can be considered to be a human right under this covenant. It further concluded that the adequacy of water should not be treated narrowly, by mere reference to volumetric quantities and technology, but as a social and cultural good and not primarily as an economic good. However, the manner of the realization of the right to water must also be sustainable, ensuring that the right can be realized for present and future generations.

Unfortunately, however, this General Comment No. 15 had no perceptible impact during the Kyoto Forum on World Panel on Financing Water Infrastructure in 2003 (UN 2002). The report, Financing Water for All (2003) only gave the initial impression of addressing how new sources of investment can be marshaled to promote water infrastructural development, including universal access to clean water (Wolfensohn 2005). Nevertheless, it is fair to note that at present, no sane individual or country opposes the concept that all humans should have access to clean water. The main issue thus hinges around not whether water is a human right, but how to ensure that all humans have access to clean water and proper wastewater management within the social, economic, physical and political conditions and constraints within which they live. The solutions and the implications for the problems to be solved are complex, and are likely to differ from one place to another. However, Biswas *et al* (2008) fear that the concern of some of the countries that are not in favour of promulgating the concept that water is a human right stem from the fact that they are unsure of the legal implications if they approved the overall philosophy. According to them, some countries are worried that they will be sued for compensation because they will be unable to meet this universal obligation for some considerable time to come. Also, other countries worried that human rights to water may mean free provision of clean water and proper wastewater management for everyone, which they simply cannot afford. From the look of things, this concept cannot be achieved within the

foreseeable future, and progress in terms of acceptance of the concept of water as a human right is likely to be slow

Water-Related Poverty

According to Eric *et al* (2009), water-related poverty emerges when water resources constrain or impact upon people's livelihood options and assets. This may occur because of flooding or drought, limited access, expense, water quality or water-borne disease (Black and Hall, 2004), and depends upon the characteristics of the resources and the capacity of the community to make use of it (Sullivan and Meigh 2003).

For the poor, much more than for the non-poor, the fulfillment of humankind's most basic aspirations such as a long and healthy life, having sufficient resources to earn a living, among others, is predicated on the state of the environment, including water resources. In the view of Bucknall (2000), the environment is central to poor people's sense of well-being, empowerment and control over their own lives. It affects their ability to choose jobs and livelihoods, to assert cultural and religious values, income generating activities and leisure, among others.

Water And Livelihoods

A livelihoods approach to water allows us to consider the many and complex ways in which water affects people's abilities to pursue an overall sustainable livelihoods, or to cope with shocks and stresses. Water can be seen as flowing through three interlinked systems – a hydrologic system, a food production system, and a livelihood system (Cook and Gichuki 2006). Interventions for poverty reduction can be targeted at any of these systems, and might include the provision of water resources, protection of environment flows, protection from health hazards, and especially for agricultural water use, increases in water productivity.

Water productivity, according to Molden *et al* (2007), expresses the socio-economic and environmental benefits derived from the use of water. A system that can deliver more benefits with a given amount of water than another system has a higher water productivity. Eric *et al* (2009) identify three ways of accomplishing this. They are increasing socio-economic or environmental services, reducing agricultural crop production, and decreasing negative impacts on other system. To further explain this, the basic links between water and crop-supported livelihoods are shown in the figure 1 below:

The available water is then used to produce crops, in an amount determined by the water productivity. The produce is then used to support livelihood, goals

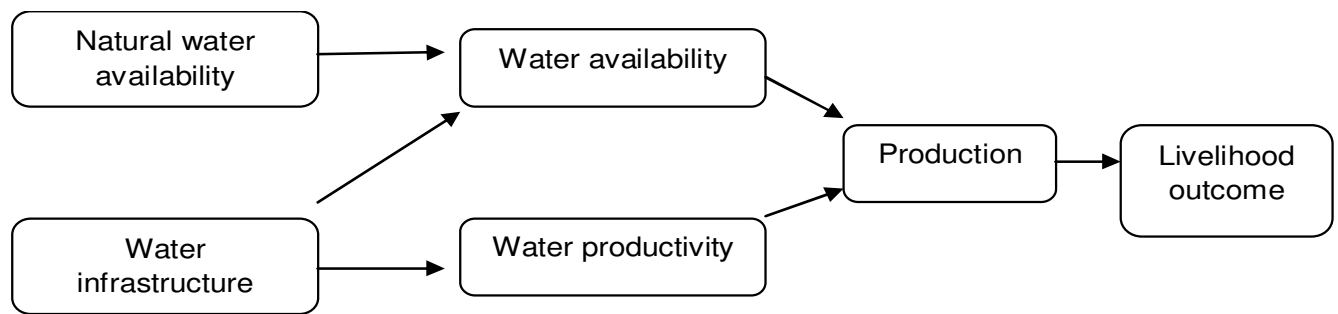


Figure 1: Basic Links Between Water and Livelihoods. In the above figure, the water available for agricultural production is determined partly by the natural water availability (the hydrological system) and partly by the available water infrastructure.

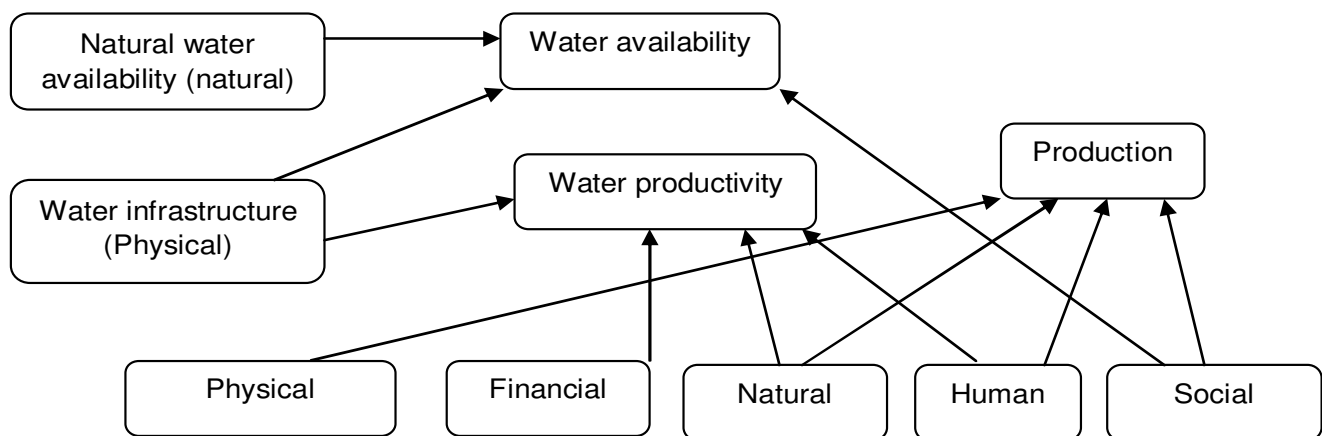


Figure 2: The Sustainable Livelihoods Assets and the Basic framework. In Figure 2 above, the node 'production' has no links to the capitals because it is taken to be a direct consequence of water availability and water productivity, which is influenced by the capitals.

resulting in livelihood outcome (after Cook and Gichuki's formulation).

Extending this further, Eric *et al* (2009) consider the sustainable livelihoods framework as an asset-based (Carter and Barrett, 2006) poverty and vulnerability analytical framework.

According to DFID (1999) the framework views people as operating in a context of vulnerability within which they have access to certain assets or poverty reducing factors. These factors gain their meaning and value through the prevailing social, institutional and organizational environment.

The factors influence the livelihood strategies (assets) that are open to people in pursuit of beneficial livelihood outcomes that meet their own livelihood objectives. The links between the sustainable livelihood assets (physical, natural, social, financially and human) and the basic framework in figure 1 is shows below in figure 2. Water

availability is affected by natural water availability (natural capital) and water infrastructure (physical capital), as well as social capital. The capitals then mediate between production and livelihood outcomes. The extent to which production is converted to livelihood outcomes depends in part, on the assets available to households and the strategies they employ.

Water And Rural Poverty Reduction

Water is critical to all facets of rural development, from environmental protection and food security, to increased tourism and investment, empowerment of women and the education of girls, to reductions in productivity losses due to morbidity, mortality and malnutrition. To fully grasp the place of water in rural poverty reduction, explores water under the following headings.

Multiple Uses Of Water

In rural areas, people use water for many difficult kinds of activities, which is often referred to as the multiple uses of water. These are grouped into Domestic uses, such as drinking, bathing, cooking and cleaning. Productive activities such as growing food, water for livestock, and water for income-generating activities including both large-scale and small scale activities, often home-based activities where the poor are themselves entrepreneurs. In some cases, investment in water infrastructure such as dams and irrigation schemes can act as a catalyst for local and regional development. Water is also essential to the viability and long term sustainability of all the world's ecosystems.

Multiple Sources Of Water

People may get their water from more than one source. Water may come from a borehole or a bulk supply system, fountains and springs, and rivers or streams. Earth dams are constructed for livestock watering, as rainwater can be collected, and grey water (water that has been used for washing) can be used on gardens.

Multiple Technologies for Water

In order to make water accessible, different kinds of infrastructure or technology may be used. A borehole pump is needed to extract ground water, often powered by electricity, a diesel or a hand pump. A reticulation system requires pipes and taps. Rainwater needs containers for storage, and gathering or trenches for capturing and leading the water to the containers.

Multiple Uses Of Water

Different people need water for different things. These differences can be in conflict, especially when water is in short supply.

Heterogeneity is used to describe that there are many differences between people (their gender, age, health, background, education, expectation and needs); and thus between the livelihood strategies of different households. Water plays an important part in people's livelihoods strategies, affecting their well-being in many ways: their health, time availability, nutrition, leisure and so on.

According to Award (No date), a multiple use system approach to planning for water enhances people's livelihoods, especially those of the poor, hence there is the need to seek an appropriate match between use, users, sources and technology.

RECOMMENDATIONS

Poverty reduction refers to a situation where specific manifestation of poverty are systematically reduced, as well as seeks to provide the necessary underpinnings to growth and ensures that there is access to basic needs and essential factors of production (Ogwuche 2005). To achieve a sustainable rural poverty reduction, access to adequate water, within the sustainable livelihood framework, is compulsory.

Water availability is affected by natural water availability (natural capital) and water infrastructure (physical capital) and social capital.

These capitals mediate between production and livelihood outcomes. The rural people are encouraged to optimize the natural sources of water in their domains. Developing countries are hereby mandated to pursue vigorously the provision of water infrastructure and ensure that access to water is guaranteed for all residents, especially in the rural areas. The government also has a role to play by providing water infrastructure, with water points at different strategic points in the area. The government can build dams or impound water at strategic points in the area. In each of these, the rural people should have access to these water sources.

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