AFGHANISTAN HUMAN DEVELOPMENT REPORT 2011

The Forgotten Front: Water Security and the Crisis in Sanitation

Vulnerability, Water and Human Security

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At least 1.8 million children under five years old die every year from water related disease, or one every 20 seconds.

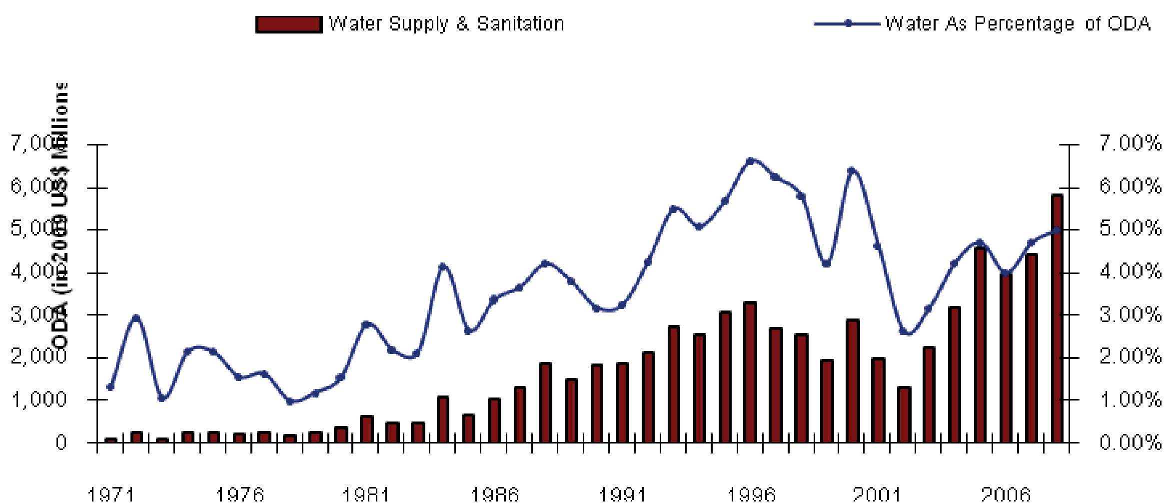
— Steiner (2010)

1. Introduction: Water for life, livelihoods and prosperity

This background paper locates water within the wider literature on vulnerability, human security and human development. It begins with a discussion of contemporary water challenges before going on to define human security, as well as vulnerability. This initial section of the paper then outlines and critiques the key debates surrounding water security reflected within the scholarly and professional 'grey' literature. This provides a framework for analysis for the case study of vulnerability, water and human security within Afghanistan. The arguments presented in this paper are framed around the dichotomy of water for life (namely, water for household use) and water for livelihoods, highlighting the links between these two key areas of water usage and human security. It ends by presenting a new framework for a water–human security nexus that offers an appropriate and illuminating perspective on water programming and reinforces the need for an holistic approach in water management.

As Grey and Sadoff (2007: 56) note "water is a source of life, livelihoods and prosperity." A sufficient supply of water for life requires providing access to enough safe water to meet basic needs and household needs and ensure basic survival. Water for life is increasingly recognized as a fundamental right and as instrumental in attaining health security. Additionally, water is often at the heart of a number of livelihood activities, from agriculture to light industry; as such, access to water is essential to both subsistence and growth. Although this background paper focuses on water from the perspective of human security, it is important to note that water remains a global issue among states and a regional issue for riparian states, as well as a key concern for individuals. Furthermore, the human security perspective enables transnational and non-traditional threats to be identified in water access and climate change. If the transboundary challenge of water management is to be addressed effectively, this will require regional and global cooperation and institution building.

Figure 1: Water and Sanitation Spending as a Proportion of All Official Development Assistan



Source: OECD.Stat, http://www.oecd-ilibrary.org/economics/data/oecd-stat_data-00285-en.

In recognition of the centrality of water to human security, support for this crucial sector has been on the

rise. Water-related aid has increased in Afghanistan in line with global trends; however, it has been subject to an uneven distribution of resources dependent upon specific security conditions. Figure 1 identifies the rising levels of official development assistance being provided globally, as well as the increasing percentage of this assistance that is provided to water supply and sanitation (though not necessarily water for livelihoods). Interestingly, there is a noticeable dip in the percent of aid given to water and sanitation in 2001 and 2002, which correlates with a period of increased international concern with 'hard' security and counterterrorism. One may infer from this decline that water and sanitation are viewed as relatively less integral to the establishment of security and stability in the immediate aftermath of war. As discussed in the following section, water is integral to security at multiple levels and particularly to human security.

What is Human Security?

Definitions of security have traditionally concentrated on military threats towards states dominated by a realist, state-centric framework. The concept that was formalized in international development discourse by the United Nations Development Programme (UNDP) in its Human Development Report 1994 is intended to combine "human development and human freedom" within the security realm (see UNDP 1994, 2006: 3). UNDP (1994) indicates that human security consists of seven different forms of security: economic, food, health, environment, personal, community, and political. (These are presented in more detail elsewhere below.) In essence, human security moves away from a traditional state-centric perspective to concentrate on the needs of the individual (Tadjbakhsh and Chenoy 2007). Adopting a human security framework attempts to broaden the narrow agenda of security studies to include issues that threaten individual well-being outside the scope of the state and regardless of the occurrence of large-scale, armed conflict (which, nonetheless, comprises a major threat to multiple dimensions of human security). Advocates of human security argue that "security is a human condition", and, therefore, bottom-up as opposed to state-dominated top-down perspectives must be considered (Hough 2004: 9).

The concept of human security places development concerns on the security agenda and can help to provide protection for citizens in states where institutions remain underdeveloped (Ogato 2004). More recently, the United Nations Millennium Summit considered both freedom from want and freedom from fear as twin ideals for promoting human security (Annan cited in Ogato 2004: 8). According to former United Nations Secretary-General Kofi Annan (Annan 2005a),

human security can no longer be understood in purely military terms. Rather, it must encompass economic development, social justice, environmental protection, democratization, disarmament and respect for human rights and the rule of law.

Critics argue that such definitions of human security are too "expansive and vague" (Paris 2001: 88). It remains somewhat unclear what does or does not fall under the banner of human security; to some it appears that, under this broad agenda, almost anything can be deemed a security threat (Ayoob 1997). As a result "thresholds and measurements of human security are especially complicated" (Tadjbakhsh and Chenoy 2007: 17). More critically still, Paris (2001: 93) argues that "if human security means almost anything, then it effectively means nothing." This lack of clarity in definition can be overcome by positive attempts to clarify what should and should not be included as part of the concept and by introducing possible metrics for measurement. To provide a broad definition while reflecting on the various aspects of human security, this paper draws primarily on the UNDP (1994) definition.

In many ways, the literature on human security emerged from the earlier concept of human development. Human development as described in the first UNDP Human Development Report is essentially concerned with freedom of choice and the ability to access this freedom (UNDP 1990). Human security, on the other hand, is about defending these choices, principally concerned with the threats to development and the increasing sustainability of development ventures (UNDP 1994, Alkire 2002, Gasper 2005). As Tadjbakhsh and Chenoy (2007: 98) note, "development is not enough for protecting individuals lives and

well being." Human security is therefore concerned with protecting the "fruits of development" (Tadjbakhsh and Chenoy 2007: 110). In this way, human security broadens the notion of security both horizontally and vertically; horizontally, to look at the different types of threats, and vertically, going beyond security threats to the state to consider the community and the individual as the centrepieces of security (Tadjbakhsh and Chenoy 2007). Unlike human development, which is generally perceived to be a long-term activity, human security programmes also include short-term humanitarian and emergencies responses, as well as long-term development and institutional change. Moreover, human security concerns affect individuals in both developed and developing nations and therefore offer the potential for increased collaboration in responding to shared challenges (UNDP 1994).

Table 1 identifies the various elements of human security, using the UNDP (1994) criteria. It also provides a description of each. We use this framework to identify the links between the human security framework and water in general and also in relation to Afghanistan.

Element of Human Security	Description
Economic	Freedom from poverty Essentially this is concerned with access to a secure livelihood.
Food	Access to quality food relevant to the needs
Health	Access to health care and prevention from disease
Environmental	Protection from environmental dangers such as climate change and pollution. Dyer (2002) focuses on the environmental aspects of human security which pose as a great danger to citizens all over the world and must be addressed on a global level.
Level of Human Security	Description
Personal	Physical safety Linked with peace building Psychological security is often added to this category.
Community	Physical security of communities and vulnerable groups in particular
State	Protection of civil rights and liberties

The new perspective on human security also implies a different conceptualization of vulnerability. Traditionally and under a realist vision of security (that is, one which focuses on the security of nation states), vulnerability is seen as being at risk of physical harm due, most commonly, to armed, inter-state or intra-state conflict (predicated on the breakdown of a strong state or violation of territorial sovereignty). Within the scope of human security, vulnerability is more commonly understood as encompassing a full range of real and perceived threats to an individual's well-being. It is commonly the poorest and most marginalized members of society that are most at risk from human security threats. Vulnerability is neither a static nor a singular concept and differs according to the context and nature of social exclusion. In general and for the purpose of this paper, some frequently cited vulnerable groups include children and youth; the elderly; women; ethnic, racial, or religious minorities; isolated populations, nomadic people; and members of other marginalized populations. Fundamentally, in focusing on protecting and defending the gains made in human development, human security aims to ensure that development assistance targets the most vulnerable and builds mechanisms that enable individuals and communities to secure their own lives and livelihoods. As Tadjbakhsh and Chenoy (2007: 105) note, "shocks and insecurities make the poor poorer and engrain poverty and vulnerability."

Water and Human Security

Access to water, while often viewed as a development issue, is increasingly recognized as a security concern. As with any commodity in short supply, water scarcity invites competition among groups that may result in conflict on multiple levels, from the interpersonal to the international (Marsden and Arnold-Forster 2007). Even if water is not the primary cause of conflict, there are strong links between water scarcity and conflict. As described by Ismail Serageldin, "if the wars of this century were fought over oil, the wars of the next century will be fought over water" (Frontline 1999). It has been argued that, given the necessity of water as a basic human need, it is somewhat inevitable that conflicts in areas of water scarcity take place (Conca 2006). For Kinnersley (1994: 185), the perception of water as a "free, scarce, endlessly renewed natural resource is just what may lead people to fight about it." Such environmental determinism is challenged by the view that water scarcity can function as a strong incentive for cooperation. Rather than understanding water scarcity as a structural given, its role should be understood as part of a complex system mediated by various contextual factors. Under the right conditions, scarcity can bring together competing parties to resolve their differences and lead to cooperation over other domains. Water therefore has the potential to catalyse conflict or cooperation. However, despite the contemporary fashion for rhetorical commitment to cooperation and the potential role of water scarcity in promoting cooperation, the reality on the ground remains predominantly one of conflict.

The literature is divided between two primary causes of water disputes, the first being scarcity, and the second being a lack of effective institutions to manage the distribution of water (Tamas 2003). However, it is not always this clear cut, and conflict can often stem from a combination of both primary factors. Scarcity is, in many ways, socially constructed and based on perceptions of scarcity often manipulated by political actors (Selby 2005). The complexity and scale of natural water systems cannot be controlled wholly by states, and communities therefore play a role in the management of water. Experience and expectations of water shape local perceptions of scarcity; for example, communities with a past of plentiful water supply are more likely to report scarcity at a level of water supply that is usual in a community with a history of poor water supply. Moreover, water scarcity can be compounded by the lack of institutions to manage water supply adequately and prevent competition for resources, which may result in conflict. Typically, water conflicts have been examined at the interstate level, notably, political interactions among countries that lie on the Nile river basin and in the Middle East (Kliot 1994; Swain 1997; Wiebe 2001; Wolf 1997, 1998). However, more recently and in light of human security debates, the literature has begun to shed light on the problems of water conflict at the local level and in the context of intra-state conflict, given the rising prominence of the resource-conflict correlation and the outbreak of 32 primarily intra-state conflicts in Africa, Asia, the Balkans, Latin America and the Middle East during the 1990s (Smith 2003). Conflict at the local level is not only created about access to irrigation water, but also over the location of water-points, the management of water-points and supplies, and the creation of technical water-distribution systems.

Water has grown as a political issue in the modern period after the end of empires, with, for example, the British-led negotiation reached between Egypt and Sudan over the use of the Nile. Global fears over water wars have started to stimulate debate over access to water and the need for effective global water management institutions (Conca 2006). As part of the 2000 Millennium Declaration, the United Nations committed, through the Millennium Development Goals, to reducing, by half, the number of people in the world who did not have access to clean water. More recently, 2005–2015 was declared by former United Nations Secretary-General Kofi Annan as the International Decade for Action: Water for Life. The commitment to addressing water scarcity is not simply concerned with the availability of water in certain areas, but also the differentiated access of individuals to that supply (Wouters 2005). The supply versus access debate is reminiscent of Sen's work on food security, which argues that the achievement of food security is not simply a matter of ensuring that there is enough food available globally on a per capita basis, but, more importantly, that people are able to command access to that food. In this sense, food security is about increasing people's freedom to access food and about the freedom that sufficient nourishment enables them to exercise. Similarly, with water security, there appears to be a symbiotic relationship between access to water and wider

human freedoms and entitlements. As a result, ensuring access to clean and safe water is deemed essential to the achievement of a number of other development indicators. In particular, Rijsberman (2003) notes that the achievement of water security is inextricably linked to a number of other Millennium Development Goals, particularly those related to health, hunger, poverty and the environment. Water is thus a central part of all human development. As summarized by United Nations Secretary-General Ban Ki-moon (2010) at the World Water Day conference in 2010:

Water is connected directly to all our United Nations goals: improved maternal and child health and life expectancy, women's empowerment, food security, sustainable development and climate change adaptation and mitigation. . . . Water is central to all our development goals.

Moreover, one of the key debates that has increased international attention over water concerns is the notion of water as a human right (Salaman and Mcinerney-Lankford 2004). The human right to water advocates that all individuals, no matter where they live, should have the right to enough water to meet their basic needs. In this sense, the notion of water as a basic right moves away from a traditional focus on rights as a political issue and towards a focus on material access. Understanding water as a right is intended to allow people to command access to water rather than treating people as passive recipients of aid. Moreover, conceptualizing water as a human right recognizes that achieving the right to water is connected to the achievement of other rights such as the right to food and adequate nutrition, housing and education (Wouters 2005). It was only at the end of 2002 that the United Nations Committee on Economic, Social and Cultural Rights recognized the right to water (in its General Comment 15), thereby accepting, as in the case of other rights, the need to protect both the right to livelihoods and the right to well-being. The committee's comment explicitly notes the state's responsibility to acknowledge and realize the human right to water by providing safe and affordable water to its citizens (Mehta 2006). However, such a principled view of water as a right does not necessarily shed light on the specific means through which this right may be satisfied.

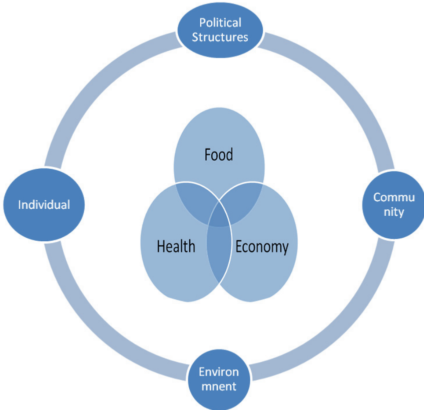
Human Development Report 1994, which introduced the concept of human security, placed a large emphasis on water concerns (UNDP 1994). Moreover, Human Development Report 2006; Beyond Scarcity: Power, Poverty and the Global Water Crisis reinforced the concept that "water security is an integral part of this broader conception of human security" (UNDP 2006: 12). The report focuses on ensuring both access to and the quality of water supplies across the globe. Water security is defined broadly by the Ministerial Declaration of The Hague on Water Security in the 21 Century, in 2000, as a state in which "every person has access to enough safe water at an affordable cost to lead a healthy and productive life and that the vulnerable are protected from the risks of water-related hazards." In this sense, the relationship between water and human security can be divided into water for life and water for livelihoods. This is summarized in table 2. Moreover, we break down the human security aspects of water in terms of water for life and water for livelihoods. This recognizes the various uses of water: the first essentially concerned with the quality of water safe for drinking and cooking, and the latter concerned with ensuring adequate irrigation, for example, to maintain crops and livestock for agricultural livelihoods.

Element of Human Security	Water for Life	Water for Livelihoods
Economic	Limited access to safe drinking water is likely to restrict the number of days spent in productive employment thus undermining economic security at the individual, community and national level. Women, who are typically charged with collecting water, are often the least productive.	Both income and productivity can be reduced as a result of ill health related to poor quality water and due to time spent away from work to collect water. Agriculture in particular is particularly reliant on adequate irrigation water. Additionally, light industry also requires water and may not be able to develop without sufficient water supplies.
Food	The achievement of food security is dependent on clean and safe water. In a number of countries in the world, children suffer from malnutrition even if they have enough food to eat because of the loss of calories as a result of diarrhoea caused by unsafe drinking water.	As well as growing food for personal consumption, crops and livestock which rely on a constant water supply, form the basis of the agricultural economy. Without sufficient irrigation water crops are likely to die, challenging food security more generally and farmer's ability to sell products at a profit and therefore maintain their livelihoods.
Health	A lack of clean water and particularly poor or limited sanitation facilities are likely to lead to outbreaks of disease and epidemics (Jones et al., 2006). Moreover, it is difficult to build a working health system without a steady supply of clean water. Water particularly causes major problems for maternal and child health.	Healthy societies are inevitably more productive. Ill health can subsequently result in loss of days spent in productive livelihoods further entrenching inequality (UNDP, 2006). This is critical in agricultural areas where harvesting crop often has to be done quickly without delay.
Environmental	Environmental factors – either too much water as a result of flooding or too little water as a result of drought can limit access to safe drinking water. Flooding may result in contamination of safe water supplies and the lack of water due to drought may result in people turning to unsafe water given the limited supply.	Environmental factors – either too much water as a result of flooding or too little water as a result of drought can prove disastrous for agriculture, thus undermining livelihoods. Other alternative livelihoods which depend on water will also face problems in drought conditions.
Personal	Restrictions on access to safe water supplies may result in violent attacks which undermine personal security. Women can face direct security threats if they have to travel far from their home towns to collect water. The individual voice is lost in the middle of the community and often cannot be heard.	In situations of scarce access to water for livelihoods competition and frustrations between groups increases and may turn violent, thus undermining personal security. These disputes are most common at the sub-national level and often between tribal groups (Wolf, unpublished). As a result violence can manifest along ethnic lines, undermining peace building attempts and physical security at the personal level.

Community	When clean water is in short supply it is likely to increase competition and reduce community cohesion. In situations of scarcity it is likely that the most vulnerable members of a society are worst affected undermining individual security.	In areas with limited water supply for agriculture competition between community members increases. In fact water conflict is most likely to arise at the local level (see above). This may result in less cooperation between farmers which limits productivity and undermines security at the community level.
State	This includes the human right to safe water but also the need for government mechanism to establish safe water sources.	As well as providing access to safe water governmental institutions in a number of contexts are also responsible for managing irrigation systems to ensure water is available for agriculturalists thus contributing to the achievement of food security and overall management of imports and exports. If states are to achieve human security access to irrigation systems must be fair and should not be determined by ethnic or class differences. If this transcends at the national level between states it may result in larger international warfare, further challenging physical security.

It is clear that the various aspects of access to water for life, water for livelihoods and the achievement of human security are inextricably linked. As demonstrated in figure 2, limited access to clean and safe water has serious health-related implications. A lack of clean water and, particularly, poor or limited sanitation facilities are likely to lead to outbreaks of disease and epidemics (Jones et al. 2006). Sanitation is a core issue for water and human security if it is recognized that all water has to drain somewhere, and access to sufficient sanitation is in many cases absent. Regulating water flows is a common traditional feature in many societies; however, local mechanisms are becoming more problematic as water becomes mixed with industrial outputs and the difficulty of recycling is increased. Ill health can result in a loss of economic productivity and the undermining of economic security (UNDP 2006). Moreover, poor health as a result of poor-quality water can cause more malnutrition and food insecurity due to the inability of the unhealthy individual to retain nutrients. Water is thus closely interrelated with every element of human security.

Figure 2: Links among Human Security, Water for Life and Water for Livelihoods



Moreover, given the links between water and other development gains, limited access to quality water can entrench vulnerability (AREU 2009). If water is in short supply, it is likely that the most deprived locations such as downstream areas and remote rural communities that experience water problems are the most heavily affected. This is particularly true in villages towards the end of the water source or in areas of already shallower water. This vulnerability is likely to reinforce the cycle of deprivation whereby poorer families are unable to access clean water, thus affecting their health and the ability to invest in education and employment. In addition, particularly among girls, the time spent collecting water is likely to reduce the access to education and the time available for agricultural labour. This relationship is summarized by Mehta (2006), who refers to a water–well-being nexus that highlights the link between access to safe water and relative life chances.

Women and children, two groups that already face varying levels of social marginalization, are often the most vulnerable to the threats of water security. Millions of children, often girls, are required to spend substantial time engaged in collecting water for household uses, and, as a result, they are prevented from attending school, a fact that has knock-on effects for the later social positions and economic opportunities of these people (UNDP 2006). Moreover, poor sanitation facilities and hygiene standards in schools for girls of menstruating age often result in lower attendance (UNDP 2006). The failure to provide access to clean, safe water can therefore entrench underdevelopment and gender inequality.

Beyond the loss of educational and economic opportunities, women's responsibility for collecting water can also result in direct threats to safety. In a context such as that in Darfur, women's personal security has been challenged when women are forced to travel to remote places to collect water where they are at risk of sexual and gender-based violence (Oxfam 2010).

Moreover, it is often rural families reliant on agricultural livelihoods that are most at threat from water scarcity. This process can entrench poverty and undermine social mobility. In addition to the core causative relationship between water access and upstream or downstream location, poverty tends to equate with social exclusion and is prevalent among ethnic, racial, or religious minority groups; these groups are frequently relatively disadvantaged or deprioritized with regard to water distribution and access. Besides undermining community cohesion, the failure to provide equal access to water for these vulnerable groups may result in conflict.

In Afghanistan, these forms of vulnerability are manifest with regard to water for life and water for livelihoods.

Water and Human Security in Afghanistan

Arguments surrounding human security are often neglected in regards to Afghanistan because of the significance and immediacy of the hard security threats pertaining to the 2001 invasion and the consequent conflict and protracted insurgency (Zakhilwal and Thomas 2005). In this paper, however, we deal with the softer aspects of security, as well as the impact of conflict on water insecurity. Notably, according to the Ministry of Rural Rehabilitation and Development (MRRD) and the Central Statistics Organization (CSO), over a third of the Afghan population live in poverty (MRRD and CSO 2008). Afghanistan was rated 155 among 169 countries on the UNDP Human Development Index for 2010 (UNDP 2010).

4.1. Water in Afghanistan

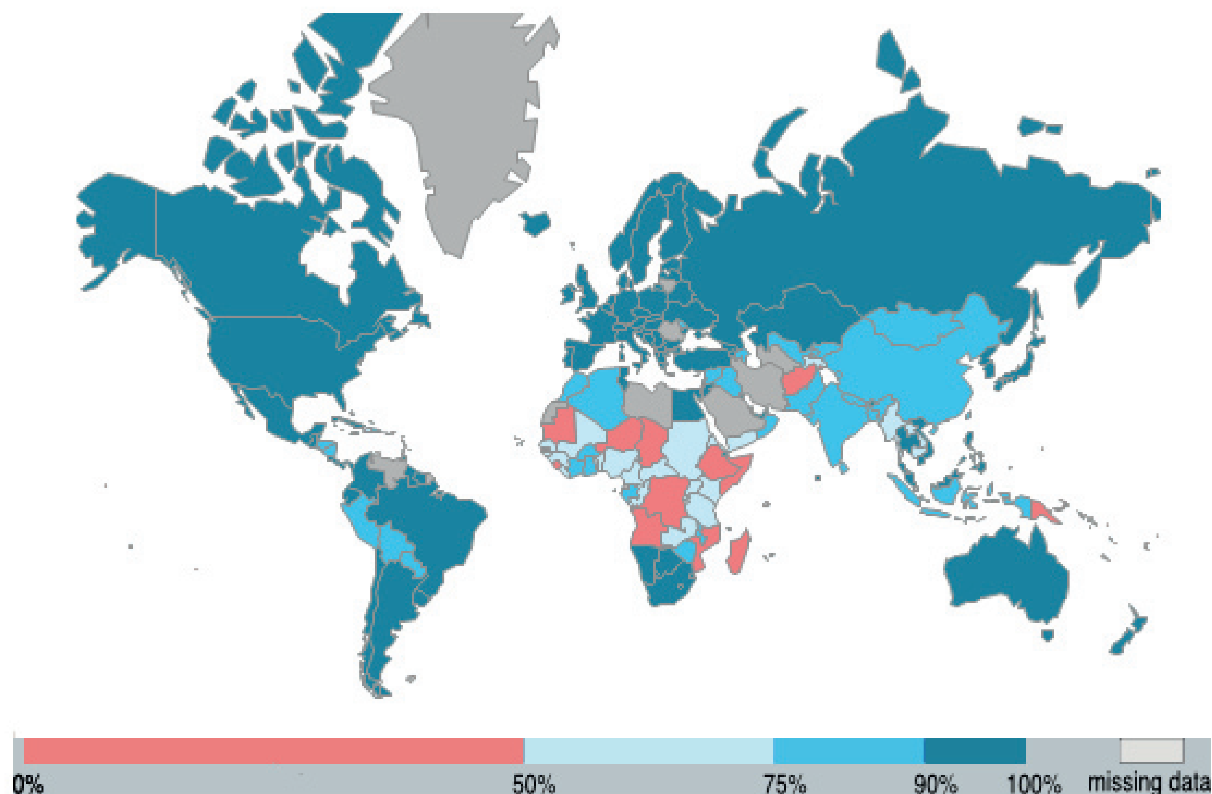
While arid or semi-arid and frequently described as unsuitable for rainfed agriculture, Afghanistan has its own access to water resources in the form of snow-melt from the Hindu Kush Mountains and a large number of rivers (Mahmoodi 2008, Qureshi 2002). Limited access to water resources in Afghanistan cannot simply be attributed to limitations in supply. In fact, according to Emadi (2007), inefficiency in the management of water supplies means that Afghanistan only uses a third of the available water. However, in recent

years, Afghanistan has suffered from episodes of drought that have decreased the availability of water across the country (Qureshi 2002). The poorest members of society are frequently those people with difficulties in accessing water, for example, users who are downstream or who rely on single water sources or inadequate technologies. Such users have been most severely affected by drought conditions (ICG 2003).

4.2. Water for life

Using data from the WHO and UNICEF Joint Monitoring Programme for water supply and sanitation, we find that access to water is much lower in Afghanistan than global averages (figure 3). Moreover, Afghanistan fares poorly in terms of access to water in comparison with its neighbours.

Figure 3: Access to Improved Water Supply, Global



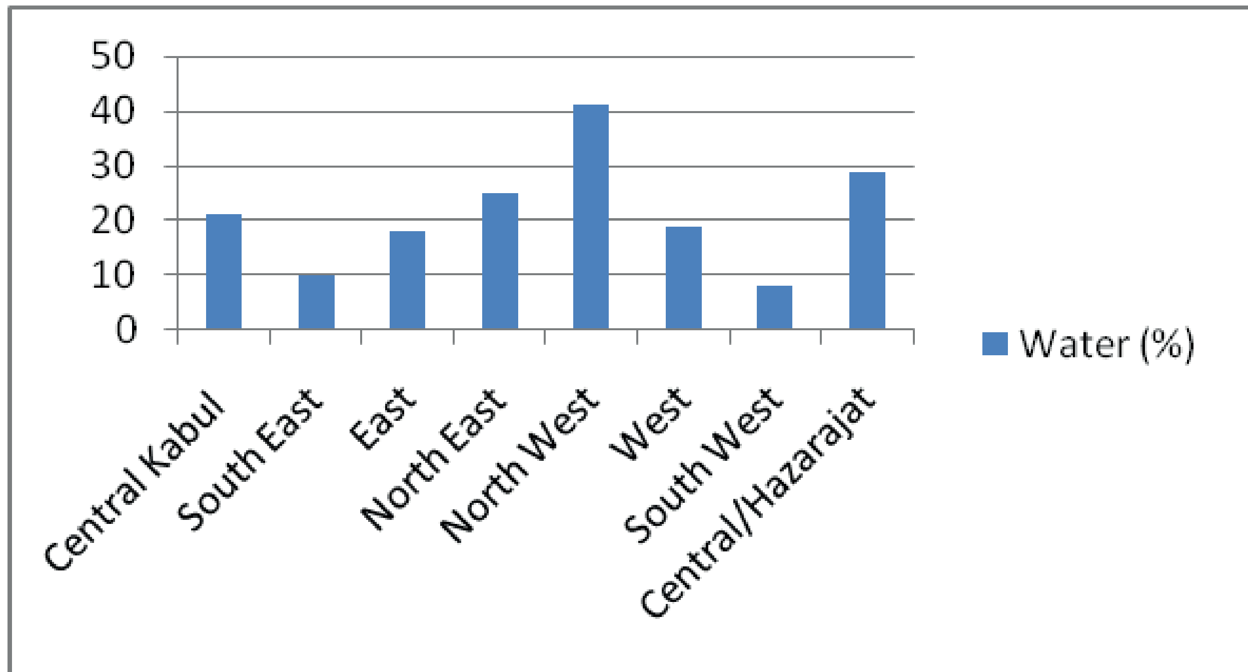
Source: WHO and UNICEF (2008).

According to MRRD and CSO (2008), only 27 percent of the Afghan population has access to improved drinking water. More worryingly still, 95 percent of the population do not have access to improved sanitation facilities. Poor water access and sanitation contribute towards the situation of malnourishment in Afghanistan, which stands at about 70 percent; one in four children dies before the age of 5 (ActionAid 2010).

According to the Asia Foundation's 2009 Peoples Survey, 22 percent of local respondents cited access to water as the first or second most important problem facing Afghanistan at the local level, compared with only 13 percent who placed insecurity first (Rennie et al. 2009). This share is higher than the share in 2006, when 18 percent of the respondents said that access to safe drinking water was the biggest problem. It appears that, as the reconstruction process has progressed, the basic needs and legitimate demands of the Afghan people have not been met despite the aid. MRRD and CSO (2008) also note that water supply has been

assigned top priority in the Shuras (community councils). Concerns over water also have a clear regional focus, with the north-west and central regions facing the most severe concerns (figure 4). Access to water is a top priority in the west according to the Asia Foundation (Rennie et al. 2009). Other problems mentioned include lack of access to services such as electricity (cited by 26 percent of the respondents), poor roads (24 percent) and insufficient health care (20 percent). There are regional differences in water access and perceptions about water. Unfortunately, according to MRRD and CSO (2008), the level of access is higher in the north-west than in the south-west, but the percentage of people who consider water a problem is lower in the south-west than in the north-west. Such discrepancies may be explained by the recognition that the perception of water as a developmental priority is shaped by a range of factors other than simply direct access to water and rainfall levels. If water issues are analysed on a per person scale, the dynamic of the inequality in access to water is not brought into focus. There is a need to study water access in a qualitative mode, in addition to quantitative approaches.

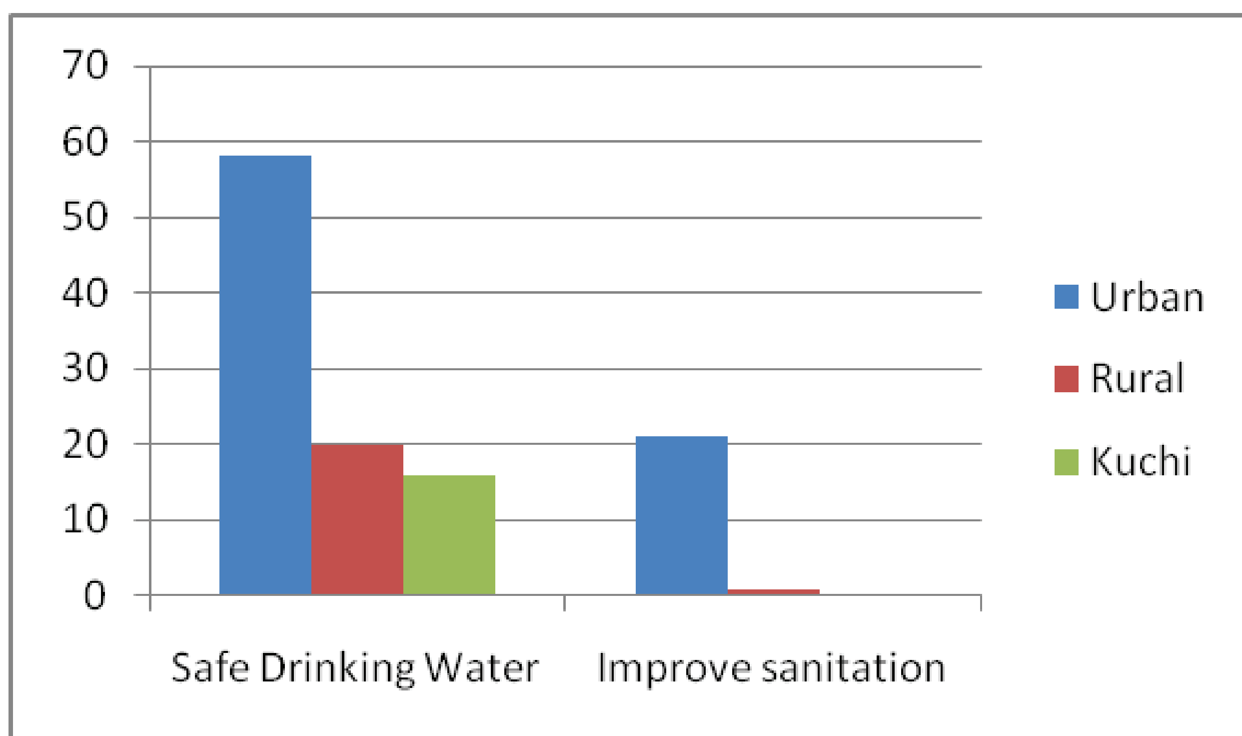
Figure 4: Percentage of People Claiming Water Is the Biggest Problem, by Region



Source: Adapted from Rennie et al. (2009).

Moreover, as well as a regional focus. there is also a strong division between urban and rural populations. This is illustrated in figure 5.

Figure 5: Access to Water: The Urban-Rural Divide



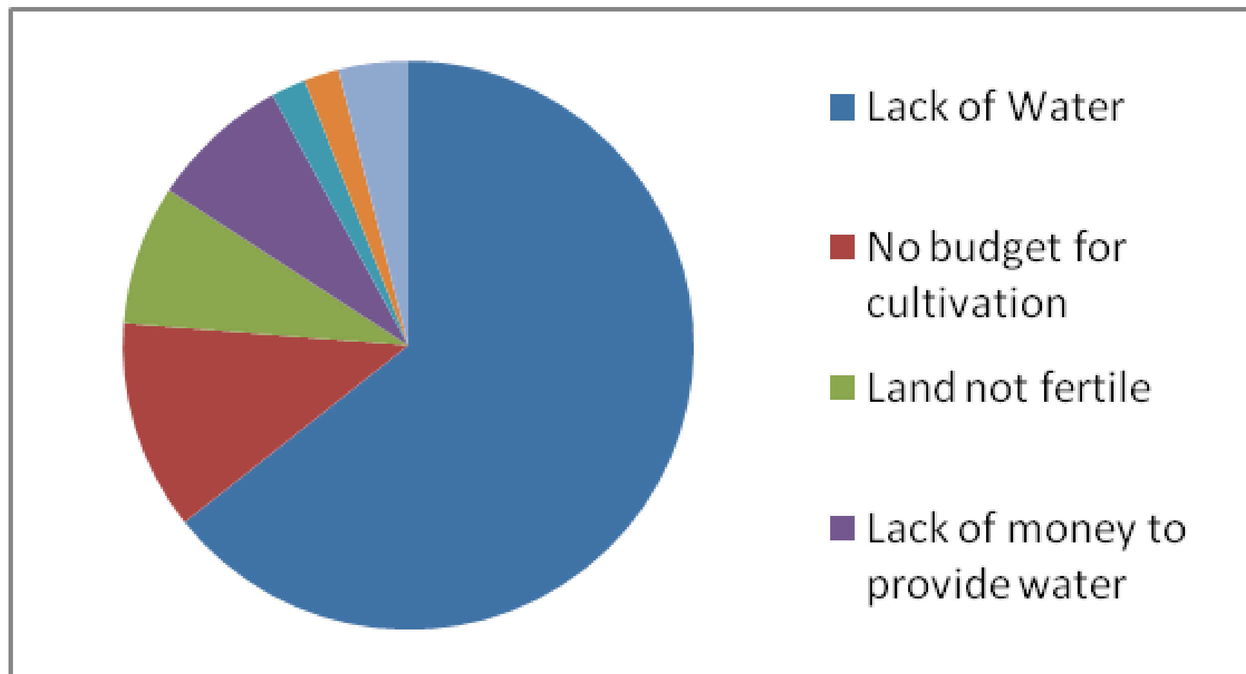
Source: Adapted from MRRD and CSO (2008).

4.3. Water for livelihoods

The focus on the availability of irrigation water is particularly important given that 80 percent of the Afghan population are agriculturalists living and working in rural areas, with 70 percent dependent on irrigated agriculture (Mahmoodi 2008, Rout 2008). Due to the limited rainfall in Afghanistan, a working irrigation system is essential for agricultural production (Qureshi 2002). Underdeveloped capacity and oversight means that, often, farmers lack knowledge about crop irrigation mechanisms, and they overwater or underwater crops (Qureshi 2002). The insufficient availability of water and the poor management of water supplies, alongside other issues such as access to credit, seeds, fertilizers and other inputs, mean that licit agriculture only makes up 37 percent of gross domestic product (ICG 2003). More recently, for these reasons, plus the dry climate and continuing conflict, Mahmoodi (2008) notes that the amount of irrigated land in Afghanistan has declined by nearly 50 percent. Improving access to water is essential for ensuring sustainable livelihoods (Qureshi 2002). According to the World Bank (2010), the agricultural sector in Afghanistan must grow by at least 5 percent annually if poverty and food security are to be addressed. Growth in agriculture is vital to meeting the increasing water demand, population expansion and changing lifestyle patterns. Ensuring access to sufficient water to maintain agricultural crops and livestock is essential for achieving this growth (AREU 2009). Qureshi (2002) notes that limited water availability has led to a decline in the number of livestock and, subsequently, in the ability to produce a number of livestock-related exports, for example, wool, hair and dung. Moreover, ensuring water for livelihoods is also essential for ensuring food security (Strategic Foresight Group 2010, AREU 2009).

A significant share of farmers are leaving their land as a result of limited water access and poor management, thus undermining the productive potential of the land and contributing to population displacement and

economic migration (figure 6). This is primarily due to a lack of rainwater and poor irrigation services.
Figure 6: Main Reasons Farmers Leave the Land



Source: Adapted from MRRD and CSO (2008).

The scarcity in water resources in Afghanistan can also be related to poor management, particularly in areas where there has been a breakdown in local governance and heightened competition across groups (Steiner 2010, Mehta 2006). This problem is highlighted by Azarbaijani-Mogaddam et al. (2008a: 13), as follows:

From the 1990s there appears to have been a decline in water flow in the system as a whole and with the breakdown of traditional structures of water management inequalities in water distribution at all levels of the irrigation system have been exacerbated. These inequalities exist between upstream district and down-stream districts notably driven by the unilateral expansion of paddy cultivation in Sholgara upstream. In this district additional canals were dug that were unauthorised, rice cultivation expanded leading to an extraction of water upstream well beyond historic and customary practices. Similar inequalities also exist between upstream and downstream areas within districts. In many upstream areas, farmers have expanded into using lift pumps to increase their irrigation allocation, increasing the disparities in terms of access to water. Power structures, in which the informal and formal intermingle, based on ethnic identity and physical location, are central to understanding the way in which water is distributed in practice.

It is commonly noted that it is not only important to ensure that irrigation infrastructure is adequate, but also to invest in irrigation management (ADB 2005). At the national level, the Irrigation Department within the Ministry of Energy and Water is responsible for managing water supply. Recent laws emphasize the need for stakeholder participation that reflects local needs and concerns (Mahmoodi 2008). However, shortfalls in capacities at the central level and ineffective rules and regulations have led to a breakdown in local service delivery (Mahmoodi 2008). Moreover, the short-termism created by conflict has meant that many ministries are inherently opposed to any sort of long-term planning (Wegerich 2009). This point must be qualified by the recognition that integrated water resources management (IWRM) and river basin management are long-term strategies adopted in the Water Law.

In practice, many local communities in Afghanistan still operate through the traditional mirab system by which local leaders or 'water masters' take responsibility for coordinating water distribution (ADB 2005).

This system has existed in Afghanistan for thousands of years (Lee 2006). Wouters (2005) reminds us that we must not simply focus on water security at the national level, but also at the local level. This is particularly important in the case of Afghanistan given the wide disparity in development indicators and security across provinces. However, at the local level, it is unlikely that regional plans to ensure sustainable water systems are devised effectively, if at all, and limited financial, security and infrastructural planning has undermined implementation and sustainability (Mahmoodi 2008).

Research on water security in conflict environments such as Afghanistan have pointed to IWRM as a means of managing water supplies horizontally (across public agencies) and vertically (between local and national organizations) (Mitchell 2005, Van der Zaag 2005). The IWRM approach was first considered under the Dublin Principles in 1992 and, later that year, within Agenda 21, which was an outcome of the United Nations Conference on Environment and Development, in Rio de Janeiro. In essence, the IWRM calls for "transparent and inclusive decision making" and the promotion of "strategic interactions" among various partners in water management (Van der Zaag 2005, Dinar 2009: 330). In particular, supporters of IWRM suggest that decisions regarding water should be taken at the lowest possible level, while ensuring continued coordination with higher-level governance (GWP 2000). This approach encompasses the reference of Blatter et al. (2001a) to globalization in water governance, combining the local and the global in efficient water management.

IWRM offers an alternative approach that combines horizontal and vertical decision-making through a coordinated or integrated pathway and stipulates the central importance of cooperation at all levels (GWP 2000, Wegerich 2009). This is particularly important in geographically large countries such as Afghanistan experiencing the need to manage decision-making at the central and provincial levels and adapt policies accordingly. The approach allows consensus to be built at the lower level, thereby ensuring local ownership, understanding and participation (Mitchell 2005). This participatory approach may also be the first step in helping to rebuild fractured communities in Afghanistan, particularly those with a high share of returning displaced persons (Emadi 2007). As a result, IWRM appears to correlate with attempts at resolving human security issues by focusing on individual perceptions and concerns.

In Afghanistan, IWRM promotes the involvement of local river basin organizations and stakeholders, including water user associations. The Irrigation Department in the Ministry of Energy and Water, with international support, is responsible for implementing IWRM (ADB 2005). However, Lee (2007) and others are critical of the government's approach and question whether local communities and stakeholders are aware of existing water laws and the ongoing policy reform processes, which tend to be driven by international demand rather than a participatory approach. It is clear that mechanisms for IWRM need to respect and show an awareness of the various (autonomous) mechanisms for the community management of water systems, which tend to vary from region to region across Afghanistan (Lee 2007).

Another mechanism for development in Afghanistan that includes irrigation and water-related projects is the National Solidarity Programme for Afghanistan (NSP), which is facilitated by MRRD and supported by international actors via the Afghanistan Reconstruction Trust Fund. NSP aims to provide communities with block grants for local infrastructure development projects, while fostering local governance through consultations with local community development councils. The process is essentially bottom-up, supported by the Afghan Government and implemented by the affected communities. It is also supported by the international community through facilitating partners that assist with community mobilization and the technical dimensions of infrastructure projects. One of the central aims of NSP is to ensure that individuals and communities 'feel' the state by playing a role in the process of service delivery.

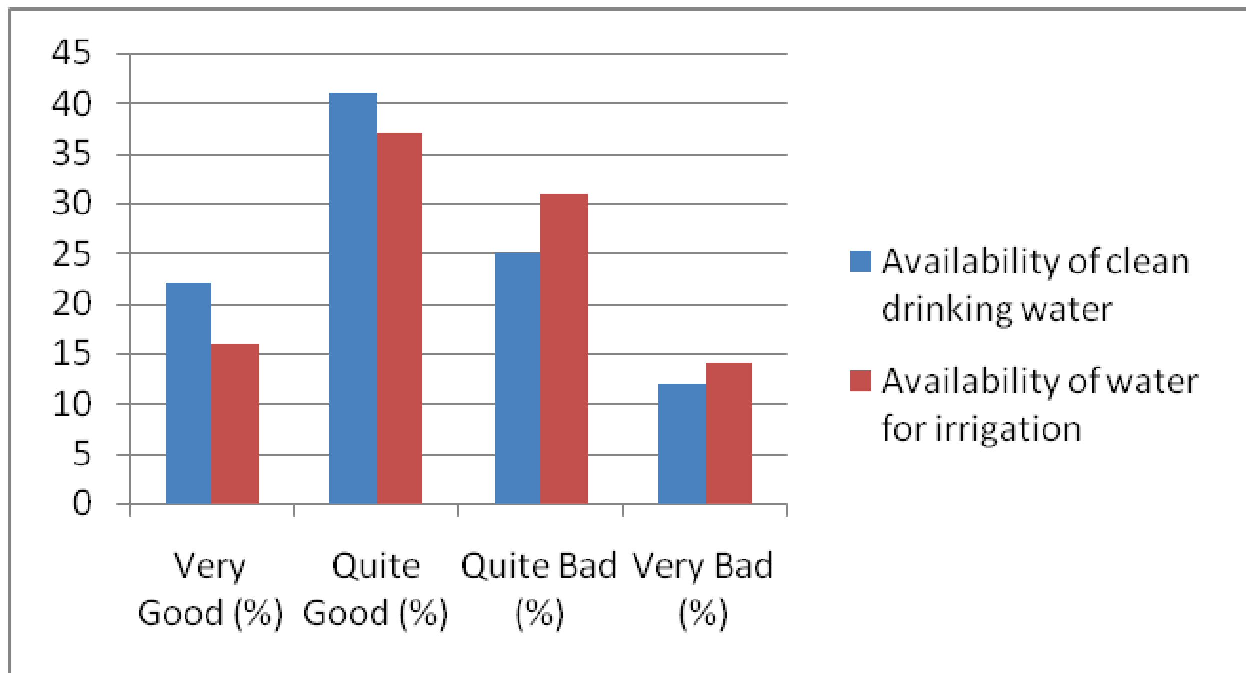
At the administrative level, the danger in the implementation of IWRM and NSP programmes is that attempts to address water insecurity and water policy in general are caught between several ministries with little coordination or oversight. As we can see from the above, a key role falls to the Ministry of Energy and Water and MRRD. However, other ministries, such as urban development, health and agriculture also play

a role. If an holistic approach to water management is to be achieved, coordination among these various entities is of fundamental importance. A 'whole of government' approach is required that is underpinned by a robust architecture of collaborative governance that balances the need for national political control and local community participation.

Many NSP projects have included water-related infrastructure development, with an associated focus on community empowerment and mechanisms to ensure that development benefits the poor (Emadi 2007). As a result, NSP has helped enhance the country's hydrometeorological infrastructure and management structures (World Bank 2010). However, there is a danger that, in changing the power structures over water mechanisms from traditional management to community development councils, internal conflict may develop (Dennys and Zaman 2009). Moreover, some NSP-funded projects risk being unsustainable in the long term (Zakhilwal and Thomas 2005). This reflects the overreliance on international assistance in Afghanistan more generally, which means that, over the long term, Afghanistan in unlikely to be able to sustain the developments in water supply (Marsden and Arnold-Forster 2007).

Alongside attempts to improve access to irrigation water, much of the international community has implemented efforts to boost access to safe drinking water. Figure 7 illustrates the reactions of consumers to the availability of clean drinking water. Over half of respondents reported the availability of drinking water to be good or very good, and 85 percent were optimistic that the availability of drinking water would increase. This positive reaction is likely to be a response to the heavy international presence. Notably, 42 percent of respondents claimed to have heard about water development projects, which could be the source of these high expectations (Rennie et al. 2009). Given these high expectations, it is important that the government deliver on commitments to achieve water security and capitalize on this growing optimism.

Figure 7: Reaction towards the Local Availability of Services



Source: Adapted from Rennie et al. (2009).

The links among water for life, water for livelihoods and human security in Afghanistan are summarized in table 3.

Element of human security	Water for life	Water for livelihoods
Economic	Given the significant majority of the population with limited access to safe water, the number of days spent in productive employment is limited. Moreover, low life expectancy reduces the amount of time spent in productive livelihoods.	The productivity of the agricultural sector is seriously undermined by limited access to effective water supplies, reducing the economic share that could be produced by this sector (ActionAid 2010). As well as shortages in supply, this has been compounded by a lack of effective management and oversight. Water in the mountains is also used for the generation of the electricity fundamental to so many livelihoods (Wayne 2009). Shortages of water or poor water management wcan subsequently compound problems in economic security.
Food	Limited access to safe water has undermined food security, thus contributing to high rates of malnourishment and high infant mortality rates.	The efficiency of the agricultural sector is seriously undermined by limited access to effective water supplies (ActionAid 2010). This reduces food supply and undermines food production, thereby limiting economic opportunities. This has proved particularly problematic recently in the context of prevalent drought.
Health	Because only 27 percent of the population is able to access safe drinking water and because of the high levels of poor sanitation, health security is seriously threatened. This is most common among rural populations. Limited health awareness, particularly among rural populations, leads to the spread of disease (ActionAid 2010).	Healthy societies are inevitably more productive. Ill health can result in a loss in the number of days spent in productive livelihoods, thereby entrenching inequality (UNDP 2006). This is critical in agricultural areas where harvesting often has to occur without delay.
Environment	The impact of drought in the early 2000s has limited the availability of water.	Drought has mainly affected rainfed wheat, but also irrigation water and has resulted in the loss of livelihoods.
Personala	If individuals live in areas where conflict over water is intense, their basic or physical security is threatened.	Access to water for livelihoods is one of the major causes of local conflicts. Half of all local conflicts are fought over access to land and water. Individual-level disputes have the potential to escalate upwards to community-level conflict.
Community	Community insecurity over access to safe water supplies is more common in areas of significant returns of refugees and internally displaced persons, leading to a breakdown of cohesion within the community.	The erosion of traditional conflict resolution structures as a source of social capital has reduced the capacity of communities to deal with conflict. Resultant conflict can break down community ties and undermine social cohesion. Additionally, conflict over water at the local level often transcends along ethnic lines and undermines community security.

State	Attempts have been made by the government to supply clean drinking water, with support from the international community. Failure to deliver on this, especially in the context of high expectations, may lead some to turn against the state.	State-initiated attempts to ensure water access and improve water security include NSP and IWRM.

The impact of water on physical security is discussed elsewhere below.

4.4. Links with vulnerability

The regional disparities and differences between rural and urban groups in Afghanistan have already been noted. In addition, poorer rural families are typically located towards the end of the water source or where wells are not sufficiently deep, and they have access to significantly lower-quality water, thus heightening vulnerability (AREU 2009). For example, rural populations in the areas of Maywand and Khakrez that rely on shallow water wells have become increasingly water insecure as a result of both conflict and drought (ActionAid 2010).

Children and women are also adversely affected. Access to water is highly gendered in Afghanistan. MRRD and CSO (2008) identify clear links between woman-headed households and high rates of poverty. Women are rarely involved in the management of water systems, and their needs and opinions are often overlooked (Lee 2007). The traditional marriage system provides women with ownership over household land. However, men relatives often remove this privilege, take control of the land themselves and, in some instances, sell it (Lee 2007). This process increases the vulnerability of women and affects the ability of women to command their own human security. Additionally, woman-headed households are much less likely to be able to afford a water supply, and cultural perceptions mean that they are often unable to access public sanitation sites (Azarbaijani-Mogaddam et al. 2008b).

Moreover, the enrolment of children in education in Afghanistan is low. Only 50 percent of poor families and 53 percent of non-poor families have access to primary education, and the corresponding shares fall to below 20 percent in secondary education (MRRD and CSO 2008). Children, often girls, are particularly burdened with the task of collecting water (Azarbaijani-Mogaddam et al. 2008c). Notably, the female enrolment rate is significantly lower than the male enrolment rate. Education is also important in teaching health awareness to children; this could help stop the spread of water-borne diseases. ActionAid (2010) has reported high rates of children being treated everyday for diarrhoea as a result of contaminated water resources in Kandahar.

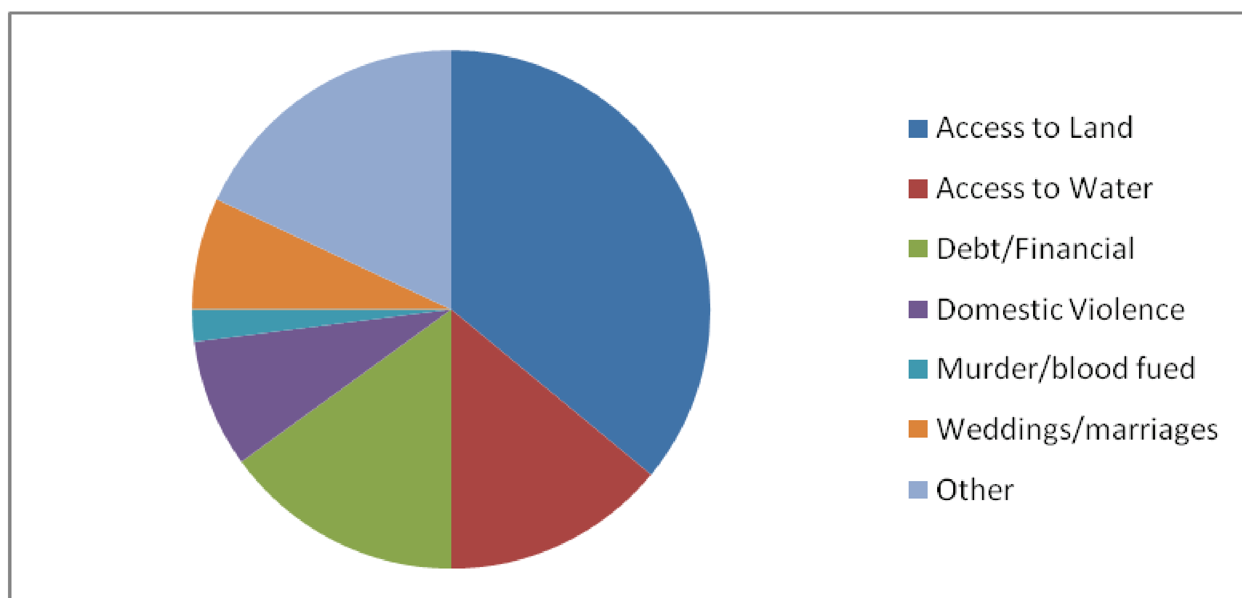
Other vulnerable groups in Afghanistan include returning refugees, whose presence can increase the pressure on limited water resources and create competition between returnees and receiving communities. Mahmoodi (2008), commenting on water shortages, notes that returning internally displaced persons and refugees increase the demand for water, which can create hostility. The analysis by Dennys and Zaman (2009) of the causes of conflict in Afghanistan notes the link between areas with a high number of returnees and local conflicts, particularly over land and water. As well as migrant groups, Kuchis—the Afghan nomadic population—are usually the most vulnerable in water supply (MRRD and CSO 2008). In fact, the United Nations Assistance Mission in Afghanistan identifies them as the most vulnerable group in Afghanistan today. As the main traders and agriculturalists in Afghanistan, the Kuchis have been heavily affected by the recent drought (Minority Rights Group International 2008).

Water and Conflict in Afghanistan

It is impossible adequately to understand problems over water in Afghanistan without considering the conflict dynamics. This section looks beyond the soft security issues of human security and focuses on the impact of conflict on water supplies in Afghanistan.

Violent conflict and insurgency have tended to divert attention away from water in Afghanistan (Wayne 2009). According to Co-operation for Peace and Unity, land and water are the cause of nearly half of all local conflicts in Afghanistan, whether family or communal in nature (figure 8). Local water-related conflict is highly seasonal and is often related to the shortage of water during the dry months (Dennys and Zaman 2009). Moreover, these disputes tend to become intertwined with ethnic divisions and reinforced by local ethnic leaders (ICG 2003, Dennys and Zaman 2009). At the local level, warlords can often motivate support by playing on grievances over land and water scarcity (Qureshi 2002).

Figure 8: Conflicts by Cause



Source: Adapted from Dennys and Zaman (2009).

Problems tend to arise when famers and users upstream limit the amount and quality of water for downstream users. According to a farmer interviewed in Andarab District, water conflict in his area had led to the death of his son and brother (IRIN 2003). In other instances, equitable or inequitable water distribution may lead to grievances against the state. In northern Afghanistan in April 2006, for example, a protest against water authorities near Sheberghan who were accused of favouring particular communities over others turned violent and resulted in the death of at least one passerby. These problems over the access to and control of water are more intense in rural areas in which other economic activities are limited and in which a much greater importance of agriculture places higher demands on water resources (Dennys and Zaman 2009).

The experience of protracted conflict in Afghanistan also has implications for the supply of water, particularly because of the destruction of or damage to irrigation infrastructure and power supplies (Pinera 2009, World Bank 2010). Many shallow wells have been rendered useless as a result of conflict, whether directly due to damage or indirectly through lack of supplies and maintenance (ActionAid 2010). Moreover, conflict has led to serious shortfalls in expertise and a flight of experts in the water sector, particularly qualified engineers, and reduced the quality of planning and mitigation in the case of drought (ADB 2005, 2008).

This has led to limitations in the access of individuals to safe water for drinking and to the supply of water for livelihoods.

More broadly and in the context of human security, conflict can undermine capacity in other services such as health and education. Because of limited access to safe water and food, the risk of disease and malnutrition is much higher. Without a sufficient health service to deal with these issues, the risks are greater, and the impact even more devastating (Cohen and Pinstrup-Andersen 1999).

In regard to the links between water and conflict, it is also important to consider migration and displacement levels, which are also linked with vulnerability. If human security conditions are not achieved, people may leave an area. In Afghanistan, conflict has resulted in significant numbers of refugees and internally displaced persons. As of June 2009, the Office of the United Nations High Commissioner for Refugees was reporting that there were over 1.8 million refugees originating from the country, and, according to the Internal Displacement Monitoring Centre, there were over 240,000 conflict-induced internally displaced persons as of March 2010 (IDMC 2010). In many areas, irrigation managers have fled, leaving water systems unattended (Qureshi 2002). Simultaneously, the areas that have absorbed displaced populations have often found local water supplies stretched.

Protracted conflict in Afghanistan has had a profound impact on the amount of water available and the infrastructure necessary to manage water resources. This has tended to entrench human security concerns and embed vulnerability. An end to conflict and a reinstatement of physical security, alongside improvement in other human security conditions. are therefore necessary for the achievement of water security and poverty reduction in Afghanistan.

Conclusions

This paper identifies the links among water, human security and vulnerability in the context of Afghanistan. In particular, it discusses the relationship between water and human security in terms of water for life, generally referring to access to clean water at the household level, and water for livelihoods, particularly for agriculturalists.

We have adopted the UNDP definition of human security, which resides on seven aspects: health, food, economic, political, community, environmental and personal. The paper demonstrates that a lack of clean water can have a profound impact on healthy lifestyles and place added strains on the health system. Water-borne diseases can also impact food security, preventing people from retaining adequate nutrients. Additionally, food security can be hindered by lack of water for crops both for household use and for the availability of food more generally. The lack of crops can affect economic security, as well as causing a loss in the number of days spent in work because of the need to collect water. The task of collecting water has tended to fall to women, thus heightening the vulnerability of women. Lack of access to water has also undermined community cohesion, thereby affecting political cohesion. This has often resulted in local conflicts, thus affecting personal security. All of these aspects can be heightened by environmental insecurity, which can lead to scarcity.

We can conclude that the various elements of human security are interlinked and that lack of water can undermine all aspects, thereby further entrenching human insecurity. Moreover, human insecurity tends to be more prevalent among the most vulnerable, and thus the paper demonstrates that the lack of water exacerbates insecurity and entrenches vulnerability.

A New Framework for the Water–Human Security Nexus

The following recommendations are suggested for improving access to quality water from a human security perspective. Overall, however, the paper highlights the need to recognize the symbiotic relationship of water shortages and poor-quality water with the achievement of human security. It calls for an holistic approach to water resource planning and development, placing added emphasis on vulnerable groups and the need for a broader perspective on the impact of water on lives and livelihoods.

1. An assessment of the links between water and human security at the group level should be conducted, building on the perspectives and the framework of water for life and water for livelihoods explored in this paper. Particularly important in such an assessment will be the examination of the links between water provision and the public's perceptions of state legitimacy and governance. Water has significant implications for the political dimensions of human security, and these are, unfortunately, often recognized only after problems arise.
2. Afghanistan must continue to develop its recent focus on a comprehensive approach or 'whole of government' approach to water. Now, the issue is being addressed separately by numerous ministries: energy and water, rural rehabilitation and development, urban development, health, agriculture and, likely, others. The framework offered by IWRM is useful in coordinating local and national responses. Moreover, water management could be monitored through water user associations, where these exist, or community councils (such as the community development councils initiated through NSP), which are ideally placed to respond to local realities and can coordinate with the central government to ensure that policies are implemented locally.
3. There is a need for decentralization in water management. This must include adequate representation at the local level if it is to be sustainable. Getting it right at the local level is fundamental to achieving water security more generally. Indigenous approaches are likely to prove more sustainable and hold greater political legitimacy, while ensuring the human security of local populations (Conca 2006). This approach must consider all relevant stakeholders and recognize the links among water security, livelihoods, sectors such as education, and social relationships such as the empowerment of women. Although the current Water Law aims to encourage stakeholder participation and consultation with water user associations, this must be implemented on a wider scale, possibly at the level of river basins, for example, through river basin agencies and river basin councils. In addition, efforts must be made to upgrade existing management systems rather than establishing a new system that may undermine structures and community cohesion (Thomas and Ahmad 2009). Water and access to it are part of the reality of a functioning community. The system must combine modern technological advances and efficient planning systems with the traditional systems that continue to function across provinces (Wegerich 2009). This will ensure that the mechanisms implemented are locally relevant and sustainable and that rules and regulations are upheld (AREU 2009). This approach supports efforts to move towards a more decentralized system (Brown and Holcombe 2004). Moreover, encouraging local participation will inject a sense of citizenship, thereby improving relationships at the citizen-to-citizen level and the state-to-citizen level (AREU 2009, Pinera 2009, Thomas and Ahmad 2009).
4. An Afghanistan water trust fund should be established with a secretariat responsible for keeping water high on the agenda of international actors (donors, most notably). This trust fund, which may be incorporated as a specific window within the Afghanistan Reconstruction Trust Fund, could consolidate donor support, while ensuring leadership by relevant government officials and a small number of technical experts (such as experts at the Asian Development Bank or the World Bank) and community-level representation through a steering committee.
5. In most developed countries, water supply is managed by the private sector. The security situation in Afghanistan means that private investment is rare. However, as Afghanistan gradually becomes more secure, efforts must be undertaken to encourage the involvement of the private sector so as to inject efficiency and competition into the system (Pinera 2009). Worldwide in the last 10 years, there has been progress in the privatization of distribution networks for water and energy, at a time when it is imperative to focus on global and public goods rather than private goods. In many instances, privatization erodes local coping

mechanisms. These coping methods can be highly developed, including rainwater harvesting, field drainage recycling to use the second batch of drained water to irrigate fields, and the use of dry wells by nomads. Collaborative governance is important for effective water security policy. Networks of governance involving all relevant actors, such as the private sector, civil society organizations, local communities, international partners, and state bodies, are central to the concept of collaborative governance. In water management, it is important that state ministries be the lead agents in the network and exercise control over resources and quality. State control of quality assurance in a refereeing capacity is particularly important in situations in which the private sector plays a lead role as implementing agent.

6. Religious traditions may play an important role in the search for alternatives to water use patterns in Afghanistan. In Islam, water is used uniquely, for example, during prayer five times a day and in washing five times a day. There is a prohibition on wasting water that stems from the words of the Prophet, who warned that followers must only take as much water as needed even if they are taking water from the river. This symbiotic relationship at the centre of Islamic culture and the human interaction with water must be the focus of strategies to improve water use and increase levels of access and equity.

Although it has not been our main topic in this paper, the problems over water in Afghanistan extend beyond national boundaries (Strategic Foresight Group 2010). UNDP (2004) notes that the interdependence of Central Asian countries in regard to shared water sources could create many problems if not collaboratively managed.

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